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ETHICS OF THE DUST

WITH AN INTRODUCTION BY
A STUDENT OF RUSKIN

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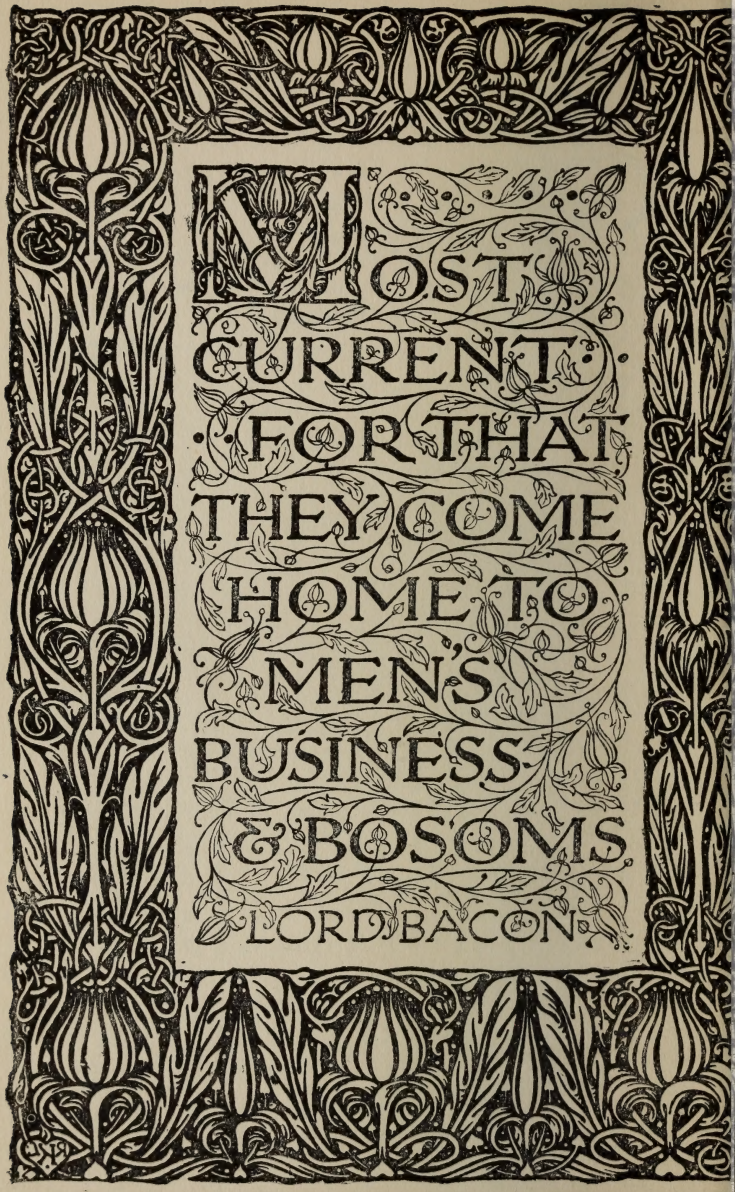
MOST
CURRENT
FOR THAT
THEY COME
HOME TO
MEN'S
BUSINESS
& BOSOMS
LORD BACON

THE ETHICS OF THE DUST

By John RUSKIN

LONDON & TORONTO
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INTRODUCTION

It is characteristic of Ruskin that he should choose to lock up so much depth and beauty of thought in a series of playful lectures to young girls. In this little book, simple as it appears, we may catch many a glimpse of the ancient *Sophia*, or heavenly wisdom, going robed, not in a nun's dress, but in all the gorgeous colours in which the jewels of the rock are dyed.

The sure instinct of the seer led Ruskin to consider not only the lilies of the field but the dust under his feet; he considered and studied for half a life-time, and then, with a perfect instinct, he took and re-created and vivified the dead knowledge of forms and processes, which is apt to lie as so much useless lumber in the unreflecting mind. He had come to believe that all knowledge is only of use when it has a substantial bearing upon life; and it is the very material of life that he here presents to young girls—knowledge transformed by thought, feeling, fancy, wit and art into a scheme of life both delicately beautiful and attainable.

It is not the least virtue of his method that where this scheme of his provokes criticism, it does so by calling out original powers of thought, by suggesting further complexities of life, greater dignities and nobilities of character. A modern Socrates, with maidens for disciples, he debates in a playful freedom the sermons that the wise may find in stones. Nothing comes amiss as an illustration—the cat's hairs, the Crystal Palace, needle and thread, the bulls of Nineveh, a Byzantine crucifix. It is this wide freedom of allusion, joined to the fascination of his subject of crystals and crystallisation, and the pictures of graceful girl-life, that give its peculiarly original charm to the book.

In reading these essays in the development of young girls, it will be well to bear in mind the order of Ruskin's own development. He was first an artist and art-lover; he was a scientist because, in order to observe truly and render faithfully, he felt he must first understand the nature of that which he observed; last of all, after years of observation and reproduction, he became a teacher of the art of life.

In his dealings with his human creatures he followed the same lines as when dealing with rock crystals or a wild rose branch; and this way of his is particularly interesting, because directly opposed to the Puritan method. The Puritan considered the young girl as an immortal soul with an immortal destiny hampered in its proper fulfilment by intolerable vanities and follies of the lower nature, which he called the flesh. He therefore set himself to thwart nature and reform her purposes; he clothed the young maidens who came under his jurisdiction in sad-coloured garments, pinned up their hair under caps, and, forbidding laughter and tears, taught them a godly control of the inclinations.

Ruskin's way was delightfully different. The young girl appealed to him first as a lovely object in nature. He wished her above all things to be natural. He liked her to be beautiful and happy and to diffuse beauty and happiness through all her surroundings. He liked her to dance and sing and laugh; to be, in fact, a spring of natural joy causing joy within all the circle of her influence. He wished her to be beautifully dressed, not expensively, but with a graceful simplicity. Travelling a step further, he thought of the soul within, and wished to see that also adorned in fair colours and lights; furnished too with as much knowledge as was needed for a right appreciation of the values of its surroundings and for the necessary selection from among these values in after life. It was from this point of view that he wrote "Ethics of the Dust," a book which was followed nine years later by the essay "Of Queens' Gardens" in "Sesame and Lilies." This essay forms

a natural sequel to the lessons given in "Ethics of the Dust" and should be so read. The passionate pleading for an exalted ideal of womanhood follows naturally after this beautiful picture of girlhood learning deep lessons in a wise sport.

The subject for these lessons Ruskin found in his favourite study of geology. From a boy he had delighted in geology. In the introduction to "Deucalion" he writes: "I began, when I was only twelve years old, a Mineralogical Dictionary . . . and year by year have endeavoured, until very lately, to keep abreast with the rising tide of geological knowledge; sometimes, I believe, pushing my way into little creeks in advance of the general wave." From babyhood, mountains were his delight. There is a story told of him that, after having been taken to stay in Scotland when a child under four years of age, he begged for a background of blue hills to be painted into his portrait. During his boyhood, mountains near and far, their beauty in distance, their paths and crags and precipices, their rocks and the wonderful forms and cleavages of these rocks, were his ceaseless study. "In all mountain ground and scenery," he says, "I had a pleasure as early as I can remember, and continuing till I was eighteen or twenty, greater than what has been possible to me in anything." This pleasure is wonderfully reflected from the pages of "Modern Painters," a book amazing as the work of a young man of three-and-twenty. In one passage of signal eloquence he describes the lifting of the lowland plains upon the flanks of the great mountains. After painting in vivid words all the beauty of the lowlands, the green fields, the different-coloured foliage of the trees, the flowing streams that reflect the blue and purple skies, farm and cottage, hedgerow and field of corn, he bids the reader imagine the lifting of all this various beauty upon the skirts of a great mountain. "Let him conceive," he says, "all this great plain with its infinite treasures of natural beauty, and happy human life, gathered up in God's hands from one edge

of the horizon to the other, like a woven garment, and shaken into deep falling folds, as the robes droop from a king's shoulders; all its bright rivers leaping into cataracts along the hollows of its fall, and all its forests rearing themselves aslant along its slopes, as a rider rears himself back when his horse plunges; and all its villages nestling themselves into the new windings of its glens, and all its pastures thrown into steep waves of green sward . . . with a cloud here and there lying quietly, half on the grass, half in the air; and he will have as yet, in all this lifted world, only the foundation of one of the great Alps. And whatever is lovely in the lowland scenery becomes lovelier in this change; the trees which grew heavily and stiffly from the level line of plain assume strange curves of strength and grace as they bend themselves against the mountain side . . . the flowers which on the arable plain fell before the plough, now find out for themselves unapproachable places . . . and the streams, which in the level land crept in dark eddies by unwholesome banks, now move in showers of silver, and are clothed with rainbows, and bring health and life wherever the glance of their waves can reach."

This is the writing of Ruskin the artist, who takes a delight far greater than common in easily visible external beauty. Ruskin the scientist goes a long step further and considers and analyses this beauty that so moves him. He takes his beloved mountains to pieces as it were; studies their crags, the broken edges of their fractures, searches for the laws that rule their being, and while endeavouring to reproduce the shapes that he loves, refuses to set down on paper a single vacuous pencil-line; each stroke of pencil or brush must make plain the mountains' ribs; its skeleton must be known, bone for bone, before it can stand aright in the picture. The same laws that shape the small have charge over the shaping of the great; so Ruskin found that the great mountain crest follows the same laws of form that shape the crystal of the broken rocks. Jagged

and rude as the lines of a mountain crag must be, they yet are subject to the universal law of beauty. An inner curve runs through that mountain bulk, animating those broken forms; the trained eye will detect amid the wildness of the mountains vast curves like the breaking waves of a storm; round curves like the rising waves of a sea; leaf shapes, wind shapes, shapes that follow the lines of the plumage of a bird's wing, or the lines of a Greek crest.

If Ruskin was already so wise when as a young man he wrote "Modern Painters," as a man of forty, after sixteen more years of labour and of observation, he was wiser still. It was when forty years of age that he went to Manchester to give a lecture on "The Unity of Art." In a letter written to his father on this occasion he mentions a "Miss Bell and four young ladies" who had come from Chester to hear him. He was evidently pleased with Miss Bell and her four young ladies, for he consented to pay them a visit at Winnington Hall, Cheshire, on his way home. So interested was he on his first visit that he returned again and again; he was allowed to try many experiments in education at this most fortunate of girls' schools. During the nine years between 1859 and 1868 these experiments were carried on, and the result of Ruskin's influence on these girls was, I have been told, happy in many respects. Some of them were the daughters of remarkable men, and grew up to fill high stations nobly. Even the little ones, who only perhaps joined his singing games for a year or two, were influenced in their after lives by Ruskin's personality and teaching.

In a letter from Winnington Hall, dated March 12, 1859, Ruskin speaks of the "enormous old-fashioned house." The drawing-room he describes as "a huge octagon, I suppose at least forty feet high, like the tower of a castle (hung half-way up all round with large and beautiful Turner and Raphael engravings) and with a baronial fireplace. The girls assembled there in the evening when it was brightly lighted up, "a quite

beautiful scene in its way." These are the surroundings that we are to imagine as a setting for these wonderful lessons in crystals. Here in this old house Ruskin attempted to carry out his ideas on education; here he tried to give shape and colour and clearness to the souls of young girls, as a jeweller might cut and polish his precious stones. Apparently playful in his method, he was really nothing if not philosophical; the French axiom "On n'apprend qu'en s'amusant" had early interested him, and his method was at bottom that of the philosophical teachers—Froebel and Pestalozzi. Himself the most accurate and faithful of workers, his immense tasks brought him so much delight that he instinctively presented learning to his little disciples in the most joyous of guises; and not learning only, but the whole scheme of your duty towards God and your duty towards your neighbour most wonderfully outlined in this brightest of catechisms. Ruskin was an ardent believer in the duty of each individual to cleanse and direct his own way; he had no great faith in salvation by reforms from the outside, political or religious; he believed in a regeneration from within of each several human soul, and this doctrine he teaches and preaches with the aid of every charming illustration. Never were such wonderful sermons found in stones before.

When "Ethics of the Dust" was first published, Carlyle wrote of it as "a most shining performance. Not for a long while have I read anything a tenth part so radiant with talent, ingenuity, lambent fire (sheet —and *other* lightnings) of all commendable kinds! Never was such a lecture on Crystallography before, had there been nothing else in it, and there are all manner of things. In power of expression I pronounce it to be supreme. Never did anybody who had such things to explain, explain them better."

In the last lecture on the Crystal Rest there may be found a few lines which are the key to the teaching that runs through the whole book. "You may at least earnestly believe," says Ruskin to his little disciples,

"that the presence of the spirit which culminates in your own life shows itself in dawning, wherever the dust of the earth begins to assume any orderly and lovely state." Here is a very deep truth, simply expressed and tucked away in a paragraph addressed to Dora and Jessie, who are clapping their hands with joy over the spirits of the mountains. The thoughtful mind that lights on such a truth may explore further still, and think on the undiscovered country of the human soul and the mysterious laws that reign there over its crystallisations, its hidden efforts after order and beauty, its desire to create lovely shapes, each soul afresh. The youngest and simplest mind may carry away a clear picture of the crystal of the rock, its strange efforts after loveliness of form and transparency of colour, its final beauty attained through obedience to law.

GRACE RHYS.

December, 1907.

The following is a list of Ruskin's published works:—

Ruskin's first printed writings were contributions to the "Magazine of Natural History," 1834–6, and poems in "Friendship's Offering," 1835, Oxford prize poem, "Salsette and Elephanta," 1839.

"Modern Painters," Vol. I., 1843; 2nd ed., 1844; 3rd ed., 1846—later ones followed; Vol. II., 1846; Vol. III., 1856; Vol. IV., 1856; Vol. V., 1860. Selections from "Modern Painters" have been published under the titles of "Frondes Agrestes," 1875; "In Montibus Sanctis," 1884; "Cœli Enarrant," 1885.

"Seven Lamps of Architecture," 1849; second edition, 1855. "The Scythian Guest," 1849 (from "Friendship's Offering"); "Poems," 1850 (from "Friendship's Offering," "Amaranth," "London Monthly Miscellany," "Keepsake," Heath's "Book of Beauty," with others not previously printed). "Stones of Venice," Vol. I., 1851; second edition, 1858; Vol. II., 1853; second edition, 1867; Vol. III., 1853; second edition, 1867. "The King of the Golden River," 1851; "Notes on the Construction of Sheepfolds," 1851; "Examples of the Architecture of Venice," 1851; "Pre-Raphaelitism," 1851; "The National Gallery," 1852; "Giotto and his works in Padua," 3 parts, 1853, 1854, 1860; "Lectures on Architecture and Painting," 1854, 1855; "The Opening of the Crystal Palace," 1854; Pamphlet for the preservation of Ancient Buildings and Landmarks, 1854; "Notes on the Royal Academy," No. I., 1855 (three editions); No. II., 1856 (six editions); No. III.

(four editions), 1857 (two editions); Nos. IV., V. and VI., 1858, 1859, 1875; "The Harbours of England," 1856, 1857, 1859; "Notes on the Turner Gallery at Marlborough House," 1856–7 (several editions in 1857); "Catalogue of the Turner Sketches in the National Gallery," 1857 (two editions); "Catalogue of Turner's Drawings," 1857–8; "The Elements of Drawing," 1857 (two editions); "The Political Economy of Art," 1857, published in 1880 as "A Joy for Ever"; "Inaugural Addresses at the Cambridge School of Art," 1858; "The Geology of Chamouni," 1858 "The Oxford Museum," 1859; "The Unity of Art," 1859; "The Two Paths," 1859; "Elements of Perspective," 1859; "Tree Twigs," 1861; "Catalogue of Turner Drawings presented to the Fitzwilliam Museum," 1861; "Unto this Last," 1862 (from the "Cornhill Magazine"); "Forms of the Stratified Alps of Savoy," 1863; "Of Queens' Gardens," 1864; "Sesame and Lilies," 1865 (two editions); "The Ethics of the Dust," 1866; "The Crown of Wild Olive," 1866 (two editions); "War," 1866; "Time and Tide," 1867; "Leoni, a legend of Italy," 1868 (from "Friendship's Offering"); "Notes on the Employment of the Destitute and Criminal Classes," 1868; "References to Paintings in illustration of Flamboyant Architecture," 1869; "The Mystery of Life and its Arts" (afternoon lectures), 1869; "The Queen of the Air," 1869 (two editions); "The Future of England," 1870; "Samuel Prout," 1870 (from "The Art Journal"); "Verona and its Rivers," 1870; "Lectures on Art," 1870; "Drawings and Photographs illustrative of the Architecture of Verona," 1870; "Fors Clavigera," 1871–84; "Munera Pulveris," 1872; "Aratra Pentelici," 1872; "Instructions in Elementary Drawing," 1872; "The Relation between Michael Angelo and Tintoret," 1872; "The Eagle's Nest," 1872; "Monuments of the Cavalli Family," 1872; "The Nature and Authority of Miracle" (from the "Contemporary Review"), 1873; "Val D'Arno," 1874; "Mornings in Florence" (in parts), 1875–7; "Proserpina" (in parts), 1875–86; Vol. I., 1879; "Deucalion" (in parts), 1875–83; Vol. I., 1879; Vol. II. (two parts only), 1880, 1883; "Ariadne Florentina," 1876; "Letters to the 'Times' on Pre-Raphaelite Pictures in the Exhibition of 1854," 1876; "Yewdale and its Streamlets," 1877; "St. Mark's Rest" (3 parts), 1877–9, 1884; "Guide to Pictures in the Academy of Arts, Venice," 1877; "Notes on the Turner Exhibition," 1878; "The Laws of Fésole" (four parts, 1877–8), 1879; "Notes on the Prout and Hunt Exhibition," 1879–80; "Circular respecting the Memorial Studies at St. Mark's," 1879–80; "Letters to the Clergy" (Lord's Prayer and the Church), 1879, 1880; "Arrows of the Chace," 2 vols., 1880; "Elements of English Prosody," 1880; "The Bible of Amiens," 1884 (first published in parts); "Love's Meinie" (Lectures delivered at Oxford, 1873–81), 1881; "Catalogue of Drawings and Sketches by Turner in the National Gallery," 1881; "Catalogue of Silicious Minerals at St. David's School, Reigate," 1883; "The Art of England," 1884 (originally published as separate lectures); "The Storm Cloud of the Nineteenth Century," 1884; "Catalogue of Specimens of Silica in the British Museum," 1884; "Catalogue of Minerals given to Kirkcudbright Museum," 1884; "The Pleasures of England" (Lectures delivered), 1844–5; "On the Old Road," contributions to Periodical Literature, 2 vols., 1885;

" Præterita," 3 vols., 1885–9; " Dilecta," 1886–87; " Hortus Inclusus," 1887; " Ruskiniana," 1890–92; " Poems " (Complete edition), 1891; " Poetry of Architecture," 1892 (from the " Architectural Magazine ").

" Stray Letters to a London Bibliophile," 1892; " Letters upon Subjects of General Interest to various Correspondents," 1892; " Letters to William Ward," 1893; " Letters addressed to a College Friend," 1894; Separate Collections of Letters, edited by T. J. Wise, were published 1894, 1895, 1896, and 1897; " Letters to Charles Eliot Norton," edited by C. E. Norton, 1897; " Lectures on Landscape," 1897; " Letters to Mary and Helen Gladstone," 1903.

Works, in eleven volumes, 1871–83; Library Edition, edited by E. T. Cook and A. Wedderburn, 1903, etc.

For Life, see W. G. Collingwood: " John Ruskin, a Biographical Outline," 1889; " Life and Work of John Ruskin," 1893; " Life of John Ruskin," 1900; Frederic Harrison: " Englishmen of Letters," 1902.

DEDICATION

TO

THE REAL LITTLE HOUSEWIVES

WHOSE GENTLE LISTENING

AND THOUGHTFUL QUESTIONING

ENABLED THE WRITER TO WRITE THIS BOOK

IT IS DEDICATED

WITH HIS LOVE

CHRISTMAS 1865

PREFACE

THE FOLLOWING LECTURES were really given, in substance, at a girls' school (far in the country); which, in the course of various experiments on the possibility of introducing some better practice of drawing into the modern scheme of female education, I visited frequently enough to enable the children to regard me as a friend. The Lectures always fell more or less into the form of fragmentary answers to questions; and they are allowed to retain that form, as, on the whole, likely to be more interesting than the symmetries of a continuous treatise. Many children (for the school was large) took part, at different times, in the conversations; but I have endeavoured, without confusedly multiplying the number of imaginary [1] speakers, to represent, as far as I could, the general tone of comment and enquiry among young people.

It will be at once seen that these Lectures were not intended for an introduction to mineralogy. Their purpose was merely to awaken in the minds of young girls, who

[1] I do not mean, in saying "imaginary," that I have not permitted to myself, in several instances, the affectionate discourtesy of some reminiscence of personal character; for which I must hope to be forgiven by my old pupils and their friends, as I could not otherwise have written the book at all. But only two sentences in all the dialogues, and the anecdote of "Dotty," are literally "historical."

were ready to work earnestly and systematically, a vital interest in the subject of their study. No science can be learned in play; but it is often possible, in play, to bring good fruit out of past labour, or show sufficient reasons for the labour of the future.

The narrowness of this aim does not, indeed, justify the absence of all reference to many important principles of structure, and many of the most interesting orders of minerals; but I felt it impossible to go far into detail without illustrations; and if readers find this book useful, I may, perhaps, endeavour to supplement it by illustrated notes of the more interesting phenomena in separate groups of familiar minerals;—flints of the chalk;—agates of the basalts;—and the fantastic and exquisitely beautiful varieties of the vein-ores of the two commonest metals, lead and iron. But I have always found that the less we speak of our intentions, the more chance there is of our realising them; and this poor little book will sufficiently have done its work, for the present, if it engages any of its young readers in study which may enable them to despise it for its shortcomings.

DENMARK HILL:
Christmas 1865.

CONTENTS

LECTURE		PAGE
I.	The Valley of Diamonds	9
II.	The Pyramid Builders	23
III.	The Crystal Life	37
IV.	The Crystal Orders	51
V.	Crystal Virtues	67
VI.	Crystal Quarrels	85
VII.	Home Virtues	101
VIII.	Crystal Caprice	121
IX.	Crystal Sorrows	137
X.	The Crystal Rest	153
	Notes	175
	Appendices	187

PERSONÆ

OLD LECTURER (of incalculable age).

FLORRIE, on astronomical evidence presumed to be aged 9.

ISABEL . . . . . „ 11.

MAY . . . . . „ 11.

LILY . . . . . „ 12.

KATHLEEN . . . . . „ 14.

LUCILLA . . . . . „ 15.

VIOLET . . . . . „ 16.

DORA (who has the keys and is housekeeper) . „ 17.

EGYPT (so called from her dark eyes) . . . „ 17.

SIBYL (so called because she knows Latin) . . „ 18.

JESSIE (who somehow always makes the room look brighter when she is in it) . . . . „ 18.

MARY (of whom everybody, including the Old Lecturer, is in great awe) . . . . „ 20.

LECTURE I

THE VALLEY OF DIAMONDS

ETHICS OF THE DUST

LECTURE I

THE VALLEY OF DIAMONDS

A very idle talk, by the dining-room fire, after raisin-and-almond time

OLD LECTURER; FLORRIE, ISABEL, MAY, LILY, *and* SIBYL.

OLD LECTURER (L.). Come here, Isabel, and tell me what the make-believe was, this afternoon.

ISABEL (*arranging herself very primly on the footstool*). Such a dreadful one! Florrie and I were lost in the Valley of Diamonds.

L. What! Sindbad's, which nobody could get out of?

ISABEL. Yes; but Florrie and I got out of it.

L. So I see. At least, I see you did; but are you sure Florrie did?

ISABEL. Quite sure.

FLORRIE (*putting her head round from behind* L.'s *sofa-cushion*). Quite sure. (*Disappears again.*)

L. I think I could be made to feel surer about it.

(FLORRIE *reappears, gives* L. *a kiss, and again exit.*)

L. I suppose it's all right; but how did you manage it?

ISABEL. Well, you know, the eagle that took up Sindbad was very large—very, very large—the largest of all the eagles.

L. How large were the others?

ISABEL. I don't quite know—they were so far off. But this one was, oh, so big! and it had great wings, as wide as—twice over the ceiling. So, when it was picking up Sindbad, Florrie and I thought it wouldn't know if we got on its back too: so I got up first, and then I pulled up Florrie, and we put our arms round its neck, and away it flew.

L. But why did you want to get out of the valley? and why haven't you brought me some diamonds?

ISABEL. It was because of the serpents. I couldn't pick up even the least little bit of a diamond, I was so frightened.

L. You should not have minded the serpents.

ISABEL. Oh, but suppose they had minded me?

L. We all of us mind you a little too much, Isabel, I'm afraid.

ISABEL. No—no—no, indeed.

L. I tell you what, Isabel—I don't believe either Sindbad, or Florrie, or you, ever were in the Valley of Diamonds.

ISABEL. You naughty! when I tell you we were!

L. Because you say you were frightened at the serpents.

ISABEL. And wouldn't you have been?

L. Not at those serpents. Nobody who really goes into the valley is ever frightened at them—they are so beautiful.

ISABEL (*suddenly serious*). But there's no real Valley of Diamonds, is there?

L. Yes, Isabel; very real indeed.

FLORRIE (*reappearing*). Oh, where? Tell me about it.

L. I cannot tell you a great deal about it; only I know it is very different from Sindbad's. In his valley, there was only a diamond lying here and there; but, in the real valley, there are diamonds covering the grass in showers every morning, instead of dew: and there are clusters of trees, which look like lilac trees; but, in spring, all their blossoms are of amethyst.

FLORRIE. But there can't be any serpents there, then?

L. Why not?

FLORRIE. Because they don't come into such beautiful places.

L. I never said it was a beautiful place.

FLORRIE. What! not with diamonds strewed about it like dew?

L. That's according to your fancy, Florrie. For myself, I like dew better.

ISABEL. Oh, but the dew won't stay; it all dries!

L. Yes; and it would be much nicer if the diamonds dried too, for the people in the valley have to sweep them off the grass, in heaps, whenever they want to walk on it; and then the heaps glitter so, they hurt one's eyes.

FLORRIE. Now you're just playing, you know.

L. So are you, you know.

FLORRIE. Yes, but you mustn't play.

L. That's very hard, Florrie; why mustn't I, if you may?

FLORRIE. Oh, I may, because I'm little, but you mustn't, because you're—(*hesitates for a delicate expression of magnitude*).

L. (*rudely taking the first that comes*). Because I'm big? No; that's not the way of it at all, Florrie. Because you're little, you should have very little play; and because I'm big I should have a great deal.

ISABEL *and* FLORRIE (*both*). No—no—no—no. That isn't it at all. (ISABEL *sola, quoting Miss Ingelow*). "The lambs play always—they know no better." (*Putting her head very much on one side.*) Ah, now—please—please—tell us true; we want to know.

L. But why do you want me to tell you true, any more than the man who wrote the "Arabian Nights"?

ISABEL. Because—because we like to know about real things; and you can tell us, and we can't ask the man who wrote the stories.

L. What do you call real things?

ISABEL. Now, you know! Things that really are.

L. Whether you can see them or not?

ISABEL. Yes, if somebody else saw them.

L. But if nobody has ever seen them?

ISABEL (*evading the point*). Well, but, you know, if there were a real Valley of Diamonds, somebody *must* have seen it.

L. You cannot be so sure of that, Isabel. Many people go to real places, and never see them; and many people pass through this valley, and never see it.

FLORRIE. What stupid people they must be!

L. No, Florrie. They are much wiser than the people who do see it.

MAY. I think I know where it is.

ISABEL. Tell us more about it, and then we'll guess.

L. Well. There's a great broad road, by a riverside, leading up into it.

MAY (*gravely cunning, with emphasis on the last word*). Does the road really go *up?*

L. You think it should go down into a valley? No, it goes up; this is a valley among the hills, and it is as high as the clouds, and is often full of them; so that even the people who most want to see it, cannot, always.

ISABEL. And what is the river beside the road like?

L. It ought to be very beautiful, because it flows over diamond sand—only the water is thick and red.

ISABEL. Red water?

L. It isn't all water.

MAY. Oh, please never mind that, Isabel, just now; I want to hear about the valley.

L. So the entrance to it is very wide, under a steep rock; only such numbers of people are always trying to get in, that they keep jostling each other, and manage it but slowly. Some weak ones are pushed back, and never get in at all; and make great moaning as they go away: but perhaps they are none the worse in the end.

MAY. And when one gets in, what is it like?

L. It is up and down, broken kind of ground: the road stops directly; and there are great dark rocks, covered all over with wild gourds and wild vines; the gourds, if you cut them, are red, with black seeds, like water-melons, and look ever so nice; and the people of the place make a red pottage of them: but you must take

care not to eat any if you ever want to leave the valley, (though I believe putting plenty of meal in it makes it wholesome). Then the wild vines have clusters of the colour of amber; and the people of the country say they are the grape of Eshcol; and sweeter than honey: but indeed, if anybody else tastes them, they are like gall. Then there are thickets of bramble, so thorny that they would be cut away directly, anywhere else; but here they are covered with little cinque-foiled blossoms of pure silver; and, for berries, they have clusters of rubies. Dark rubies, which you only see are red after gathering them. But you may fancy what blackberry parties the children have! Only they get their frocks and hands sadly torn.

LILY. But rubies can't spot one's frocks, as blackberries do?

L. No; but I'll tell you what spots them—the mulberries. There are great forests of them, all up the hills, covered with silkworms, some munching the leaves so loud that it is like mills at work; and some spinning. But the berries are the blackest you ever saw; and, wherever they fall, they stain a deep red; and nothing ever washes it out again. And it is their juice, soaking through the grass, which makes the river so red, because all its springs are in this wood. And the boughs of the trees are twisted, as if in pain, like old olive branches; and their leaves are dark. And it is in these forests that the serpents are; but nobody is afraid of them. They have fine crimson crests, and they are wreathed about the wild branches, one in every tree, nearly; and they are singing serpents, for the serpents are, in this forest, what birds are in ours.

FLORRIE. Oh, I don't want to go there at all, now.

L. You would like it very much indeed, Florrie, if you were there. The serpents would not bite you; the only fear would be of your turning into one!

FLORRIE. Oh, dear, but that's worse.

L. You wouldn't think so if you really were turned into one, Florrie; you would be very proud of your crest. And as long as you were yourself, (not that you could get

there if you remained quite the little Florrie you are now), you would like to hear the serpents sing. They hiss a little through it, like the cicadas in Italy; but they keep good time, and sing delightful melodies; and most of them have seven heads, with throats which each take a note of the octave; so that they can sing chords—it is very fine indeed. And the fireflies fly round the edge of the forests all the night long; you wade in fireflies, they make the fields look like a lake trembling with reflection of stars; but you must take care not to touch them, for they are not like Italian fireflies, but burn, like real sparks.

FLORRIE. I don't like it at all; I'll never go there.

L. I hope not, Florrie; or at least that you will get out again if you do. And it is very difficult to get out, for beyond these serpent forests there are great cliffs of dead gold, which form a labyrinth, winding always higher and higher, till the gold is all split asunder by wedges of ice; and glaciers, welded, half of ice seven times frozen, and half of gold seven times frozen, hang down from them, and fall in thunder, cleaving into deadly splinters, like the Cretan arrowheads; and into a mixed dust of snow and gold, ponderous, yet which the mountain whirlwinds are able to lift and drive in wreaths and pillars, hiding the paths with a burial cloud, fatal at once with wintry chill, and weight of golden ashes. So the wanderers in the labyrinth fall, one by one, and are buried there:—yet, over the drifted graves, those who are spared climb to the last, through coil on coil of the path;—for at the end of it they see the king of the valley, sitting on his throne: and beside him, (but it is only a false vision), spectra of creatures like themselves, set on thrones, from which they seem to look down on all the kingdoms of the world, and the glory of them. And on the canopy of his throne there is an inscription in fiery letters, which they strive to read, but cannot; for it is written in words which are like the words of all languages, and yet are of none. Men say it is more like their own tongue to the English than it is to any other nation; but the only

record of it is by an Italian, who heard the king himself cry it as a war cry, "Pape Satan, Pape Satan Aleppe." [1]

SIBYL. But do they all perish there? You said there was a way through the valley, and out of it.

L. Yes; but few find it. If any of them keep to the grass paths, where the diamonds are swept aside; and hold their hands over their eyes so as not to be dazzled, the grass paths lead forward gradually to a place where one sees a little opening in the golden rocks. You were at Chamouni last year, Sibyl; did your guide chance to show you the pierced rock of the Aiguille du Midi?

SIBYL. No, indeed, we only got up from Geneva on Monday night; and it rained all Tuesday; and we had to be back at Geneva again, early on Wednesday morning.

L. Of course. That is the way to see a country in a Sibylline manner, by inner consciousness: but you might have seen the pierced rock in your drive up, or down, if the clouds broke: not that there is much to see in it; one of the crags of the aiguille-edge, on the southern slope of it, is struck sharply through, as by an awl, into a little eyelet hole; which you may see, seven thousand feet above the valley, (as the clouds flit past behind it, or leave the sky), first white, and then dark blue. Well, there's just such an eyelet hole in one of the upper crags of the Diamond Valley; and, from a distance, you think that it is no bigger than the eye of a needle. But if you get up to it, they say you may drive a loaded camel through it, and that there are fine things on the other side, but I have never spoken with anybody who had been through.

SIBYL. I think we understand it now. We will try to write it down, and think of it.

L. Meantime, Florrie, though all that I have been telling you is very true, yet you must not think the sort of diamonds that people wear in rings and necklaces are found lying about on the grass. Would you like to see how they really are found?

FLORRIE. Oh, yes—yes.

[1] Dante, Inf. 7. 1.

L. Isabel—or Lily—run up to my room and fetch me the little box with a glass lid, out of the top drawer of the chest of drawers. (*Race between* LILY *and* ISABEL.)

(*Re-enter* ISABEL *with the box, very much out of breath.* LILY *behind.*)

L. Why, you never can beat Lily in a race on the stairs, can you, Isabel?

ISABEL (*panting*). Lily—beat me—ever so far—but she gave me—the box—to carry in.

L. Take off the lid, then; gently.

FLORRIE (*after peeping in, disappointed*). There's only a great ugly brown stone!

L. Not much more than that, certainly, Florrie, if people were wise. But look, it is not a single stone; but a knot of pebbles fastened together by gravel: and in the gravel, or compressed sand, if you look close, you will see grains of gold glittering everywhere, all through; and then, do you see these two white beads, which shine, as if they had been covered with grease?

FLORRIE. May I touch them?

L. Yes; you will find they are not greasy, only very smooth. Well, those are the fatal jewels; native here in their dust with gold, so that you may see, cradled here together, the two great enemies of mankind,—the strongest of all malignant physical powers that have tormented our race.

SIBYL. Is that really so? I know they do great harm; but do they not also do great good?

L. My dear child, what good? Was any woman, do you suppose, ever the better for possessing diamonds? but how many have been made base, frivolous, and miserable by desiring them? Was ever man the better for having coffers full of gold? But who shall measure the guilt that is incurred to fill them? Look into the history of any civilised nations; analyse, with reference to this one cause of crime and misery, the lives and thoughts of their nobles, priests, merchants, and men of luxurious life. Every other temptation is at last concentrated into this; pride, and lust, and envy, and anger all give up

their strength to avarice. The sin of the whole world is essentially the sin of Judas. Men do not disbelieve their Christ; but they sell Him.

SIBYL. But surely that is the fault of human nature? it is not caused by the accident, as it were, of there being a pretty metal, like gold, to be found by digging. If people could not find that, would they not find something else, and quarrel for it instead?

L. No. Wherever legislators have succeeded in excluding, for a time, jewels and precious metals from among national possessions, the national spirit has remained healthy. Covetousness is not natural to man—generosity is; but covetousness must be excited by a special cause, as a given disease by a given miasma; and the essential nature of a material for the excitement of covetousness is, that it shall be a beautiful thing which can be retained *without a use*. The moment we can use our possessions to any good purpose ourselves, the instinct of communicating that use to others rises side by side with our power. If you can read a book rightly, you will want others to hear it; if you can enjoy a picture rightly, you will want others to see it: learn how to manage a horse, a plough, or a ship, and you will desire to make your subordinates good horsemen, ploughmen, or sailors: you will never be able to see the fine instrument you are master of, abused; but, once fix your desire on anything useless, and all the purest pride and folly in your heart will mix with the desire, and make you at last wholly inhuman, a mere ugly lump of stomach and suckers, like a cuttle-fish.

SIBYL. But surely, these two beautiful things, gold and diamonds, must have been appointed to some good purpose?

L. Quite conceivably so, my dear: as also earthquakes and pestilences; but of such ultimate purposes we can have no sight. The practical, immediate office of the earthquake and pestilence is to slay us, like moths; and, as moths, we shall be wise to live out of their way. So, the practical, immediate office of gold and diamonds

is the multiplied destruction of souls, (in whatever sense you have been taught to understand that phrase); and the paralysis of wholesome human effort and thought on the face of God's earth: and a wise nation will live out of the way of them. The money which the English habitually spend in cutting diamonds would, in ten years, if it were applied to cutting rocks instead, leave no dangerous reef nor difficult harbour round the whole island coast. Great Britain would be a diamond worth cutting, indeed, a true piece of regalia. (*Leaves this to their thoughts for a little while.*) Then, also, we poor mineralogists might sometimes have the chance of seeing a fine crystal of diamond unhacked by the jeweller.

SIBYL. Would it be more beautiful uncut?

L. No; but of infinite interest. We might even come to know something about the making of diamonds.

SIBYL. I thought the chemists could make them already?

L. In very small black crystals, yes; but no one knows how they are formed where they are found; or if indeed they are formed there at all. These, in my hand, look as if they had been swept down with the gravel and gold; only we can trace the gravel and gold to their native rocks, but not the diamonds. Read the account given of the diamond in any good work on mineralogy;—you will find nothing but lists of localities of gravel, or conglomerate rock (which is only an old indurated gravel). Some say it was once a vegetable gum; it may have been charred wood; but what one would like to know is, mainly, why charcoal should make itself into diamonds in India, and only into black lead in Borrowdale.

SIBYL. Are they wholly the same, then?

L. There is a little iron mixed with our black lead; but nothing to hinder its crystallisation. Your pencils in fact are all pointed with formless diamond, though they would be H H H pencils to purpose, if it crystallised.

SIBYL. But what *is* crystallisation?

L. A pleasant question, when one's half asleep, and

it has been tea time these two hours. What thoughtless things girls are!

SIBYL. Yes, we are; but we want to know, for all that.

L. My dear, it would take a week to tell you.

SIBYL. Well, take it, and tell us.

L. But nobody knows anything about it.

SIBYL. Then tell us something that nobody knows.

L. Get along with you, and tell Dora to make tea.

(*The house rises; but of course the* LECTURER *wanted to be forced to lecture again, and was.*)

LECTURE II

THE PYRAMID BUILDERS

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THE PYRAMID BUILDERS

In the large Schoolroom, to which everybody has been summoned by ringing of the great bell.

L. So you have all actually come to hear about crystallisation! I cannot conceive why, unless the little ones think that the discussion may involve some reference to sugar-candy.

(*Symptoms of high displeasure among the younger members of council.* ISABEL *frowns severely at* L., *and shakes her head violently.*)

My dear children, if you knew it, you are yourselves, at this moment, as you sit in your ranks, nothing, in the eye of a mineralogist, but a lovely group of rosy sugar-candy, arranged by atomic forces. And even admitting you to be something more, you have certainly been crystallising without knowing it. Did not I hear a great hurrying and whispering, ten minutes ago, when you were late in from the playground; and thought you would not all be quietly seated by the time I was ready:—besides some discussion about places—something about "it's not being fair that the little ones should always be nearest?" Well, you were then all being crystallised. When you ran in from the garden, and against one another in the passages, you were in what mineralogists would call a state of solution, and gradual confluence; when you got seated, in those orderly rows, each in her proper place, you became crystalline. That is just what the atoms of a mineral do, if they can, whenever they get disordered: they get into order again as soon as may be.

I hope you feel inclined to interrupt me, and say, "But we know our places; how do the atoms know theirs? And sometimes we dispute about our places; do the atoms—(and, besides, we don't like being compared to atoms at all)—never dispute about theirs?" Two wise questions these, if you had a mind to put them! it was long before I asked them myself, of myself. And I will not call you atoms any more. May I call you—let me see—"primary molecules?" (*General dissent indicated in subdued but decisive murmurs.*) No! not even, in familiar Saxon, "dust?"

(*Pause, with expression on faces of sorrowful doubt;* LILY *gives voice to the general sentiment in a timid "Please don't."*)

No, children, I won't call you that; and mind, as you grow up, that you do not get into an idle and wicked habit of calling yourselves that. You are something better than dust, and have other duties to do than ever dust can do; and the bonds of affection you will enter into are better than merely "getting into order." But see to it, on the other hand, that you always behave at least as well as "dust;" remember, it is only on compulsion, and while it has no free permission to do as it likes, that *it* ever gets out of order: but sometimes, with some of us, the compulsion has to be the other way—hasn't it? (*Remonstratory whispers, expressive of opinion that the* LECTURER *is becoming too personal.*) I'm not looking at anybody in particular—indeed I am not. Nay, if you blush so, Kathleen, how can one help looking? We'll go back to the atoms.

"How do they know their places?" you asked, or should have asked. Yes, and they have to do much more than know them: they have to find their way to them, and that quietly and at once, without running against each other.

We may, indeed, state it briefly thus:—Suppose you have to build a castle, with towers and roofs and buttresses, out of bricks of a given shape, and that these bricks are all lying in a huge heap at the bottom, in utter

confusion, upset out of carts at random. You would have to draw a great many plans, and count all your bricks, and be sure you had enough for this and that tower, before you began, and then you would have to lay your foundation, and add layer by layer, in order, slowly.

But how would you be astonished, in these melancholy days, when children don't read children's books, nor believe any more in fairies, if suddenly a real benevolent fairy, in a bright brick-red gown, were to rise in the midst of the red bricks, and to tap the heap of them with her wand, and say: "Bricks, bricks, to your places!" and then you saw in an instant the whole heap rise in the air, like a swarm of red bees, and—you have been used to see bees make a honeycomb, and to think that strange enough, but now you would see the honeycomb make itself!—You want to ask something, Florrie, by the look of your eyes.

FLORRIE. Are they turned into real bees, with stings?

L. No, Florrie; you are only to fancy flying bricks, as you saw the slates flying from the roof the other day in the storm; only those slates didn't seem to know where they were going, and, besides, were going where they had no business: but my spellbound bricks, though they have no wings, and what is worse, no heads and no eyes, yet find their way in the air just where they should settle, into towers and roofs, each flying to his place and fastening there at the right moment, so that every other one shall fit to him in his turn.

LILY. But who are the fairies, then, who build the crystals?

L. There is one great fairy, Lily, who builds much more than crystals; but she builds these also. I dreamed that I saw her building a pyramid, the other day, as she used to do, for the Pharaohs.

ISABEL. But that was only a dream?

L. Some dreams are truer than some wakings, Isabel; but I won't tell it you unless you like.

ISABEL. Oh, please, please.

L. You are all such wise children, there's no talking to you; you won't believe anything.

Lily. No, we are not wise, and we will believe anything, when you say we ought.

L. Well, it came about this way. Sibyl, do you recollect that evening when we had been looking at your old cave by Cumæ, and wondering why you didn't live there still: and then we wondered how old you were; and Egypt said you wouldn't tell, and nobody else could tell but she; and you laughed—I thought very gaily for a Sibyl—and said you would harness a flock of cranes for us, and we might fly over to Egypt if we liked, and see.

Sibyl. Yes, and you went, and couldn't find out after all!

L. Why, you know, Egypt had been just doubling that third pyramid of hers;[1] and making a new entrance into it; and a fine entrance it was! First, we had to go through an ante-room, which had both its doors blocked up with stones; and then we had three granite portcullises to pull up, one after another; and the moment we had got under them, Egypt signed to somebody above; and down they came again behind us, with a roar like thunder, only louder; then we got into a passage fit for nobody but rats, and Egypt wouldn't go any further herself, but said we might go on if we liked; and so we came to a hole in the pavement, and then to a granite trap-door —and then we thought we had gone quite far enough, and came back, and Egypt laughed at us.

Egypt. You would not have had me take my crown off, and stoop all the way down a passage fit only for rats?

L. It was not the crown, Egypt—you know that very well. It was the flounces that would not let you go any farther. I suppose, however, you wear them as typical of the inundation of the Nile, so it is all right.

Isabel. Why didn't you take me with you? Where rats can go, mice can. I wouldn't have come back.

L. No, mousie; you would have gone on by yourself, and you might have waked one of Pasht's cats,[2] and it

[1] Note i. [2] Note iii.

would not have eaten you. I was very glad you were not there. But after all this, I suppose the imagination of the heavy granite blocks and the underground ways had troubled me, and dreams are often shaped in a strange opposition to the impressions that have caused them; and from all that we had been reading in Bunsen about stones that couldn't be lifted with levers, I began to dream about stones that lifted themselves with wings.

SIBYL. Now you must just tell us all about it.

L. I dreamed that I was standing beside the lake, out of whose clay the bricks were made for the great pyramid of Asychis.[1] They had just been all finished, and were lying by the lake margin, in long ridges, like waves. It was near evening; and as I looked towards the sunset, I saw a thing like a dark pillar standing where the rock of the desert stoops to the Nile valley. I did not know there was a pillar there, and wondered at it; and it grew larger, and glided nearer, becoming like the form of a man, but vast, and it did not move its feet, but glided, like a pillar of sand. And as it drew nearer, I looked by chance past it, towards the sun; and saw a silver cloud, which was of all the clouds closest to the sun, (and in one place crossed it), draw itself back from the sun, suddenly. And it turned, and shot towards the dark pillar; leaping in an arch, like an arrow out of a bow. And I thought it was lightning; but when it came near the shadowy pillar, it sank slowly down beside it, and changed into the shape of a woman, very beautiful, and with a strength of deep calm in her blue eyes. She was robed to the feet with a white robe; and above that, to her knees, by the cloud which I had seen across the sun; but all the golden ripples of it had become plumes, so that it had changed into two bright wings like those of a vulture, which wrapped round her to her knees. She had a weaver's shuttle hanging over her shoulder, by the thread of it, and in her left hand, arrows, tipped with fire.

ISABEL (*clapping her hands*). Oh! it was Neith, it was Neith! I know now.

[1] Note ii.

L. Yes; it was Neith herself; and as the two great spirits came nearer to me, I saw they were the Brother and Sister—the pillared shadow was the Greater Pthah.[1] And I heard them speak, and the sound of their words was like a distant singing. I could not understand the words one by one; yet their sense came to me; and so I knew that Neith had come down to see her brother's work, and the work that he had put into the mind of the king to make his servants do. And she was displeased at it; because she saw only pieces of dark clay; and no porphyry, nor marble, nor any fair stone that men might engrave the figures of the gods upon. And she blamed her brother, and said, "Oh, Lord of truth! is this then thy will, that men should mould only four-square pieces of clay: and the forms of the gods no more?" Then the Lord of truth sighed, and said, "Oh! sister, in truth they do not love us; why should they set up our images? Let them do what they may, and not lie—let them make their clay four-square; and labour; and perish."

Then Neith's dark blue eyes grew darker, and she said, "Oh, Lord of truth! why should they love us? their love is vain; or fear us? for their fear is base. Yet let them testify of us, that they knew we lived for ever."

But the Lord of truth answered, "They know, and yet they know not. Let them keep silence; for their silence only is truth."

But Neith answered, "Brother, wilt thou also make league with Death, because Death is true? Oh! thou potter, who hast cast these human things from thy wheel, many to dishonour, and few to honour; wilt thou not let them so much as see my face; but slay them in slavery?"

But Pthah only answered, "Let them build, sister, let them build."

And Neith answered, "What shall they build, if I build not with them?"

And Pthah drew with his measuring rod upon the sand. And I saw suddenly, drawn on the sand, the outlines of great cities, and of vaults, and domes, and aqueducts, and

[1] Note iii.

bastions, and towers, greater than obelisks, covered with black clouds. And the wind blew ripples of sand amidst the lines that Pthah drew, and the moving sand was like the marching of men. But I saw that wherever Neith looked at the lines, they faded, and were effaced.

"Oh, Brother!" she said at last, "what is this vanity? If I, who am Lady of wisdom, do not mock the children of men, why shouldst thou mock them, who art Lord of truth?" But Pthah answered, "They thought to bind me; and they shall be bound. They shall labour in the fire for vanity."

And Neith said, looking at the sand, "Brother, there is no true labour here—there is only weary life and wasteful death."

And Pthah answered, "Is it not truer labour, sister, than thy sculpture of dreams?"

Then Neith smiled; and stopped suddenly.

She looked to the sun; its edge touched the horizon-edge of the desert. Then she looked to the long heaps of pieces of clay, that lay, each with its blue shadow, by the lake shore.

"Brother," she said, "how long will this pyramid of thine be in building?"

"Thoth will have sealed the scroll of the years ten times, before the summit is laid."

"Brother, thou knowest not how to teach thy children to labour," answered Neith. "Look! I must follow Phre beyond Atlas; shall I build your pyramid for you before he goes down?" And Pthah answered, "Yea, sister, if thou canst put thy winged shoulders to such work." And Neith drew herself to her height; and I heard a clashing pass through the plumes of her wings, and the asp stood up on her helmet, and fire gathered in her eyes. And she took one of the flaming arrows out of the sheaf in her left hand, and stretched it out over the heaps of clay. And they rose up like flights of locusts, and spread themselves in the air, so that it grew dark in a moment. Then Neith designed them places with her arrow point; and they drew into ranks, like dark clouds laid level at morning. Then

Neith pointed with her arrow to the north, and to the south, and to the east, and to the west, and the flying motes of earth drew asunder into four great ranked crowds; and stood, one in the north, and one in the south, and one in the east, and one in the west—one against another. Then Neith spread her wings wide for an instant, and closed them with a sound like the sound of a rushing sea; and waved her hand towards the foundation of the pyramid, where it was laid on the brow of the desert. And the four flocks drew together and sank down, like sea-birds settling to a level rock; and when they met, there was a sudden flame, as broad as the pyramid, and as high as the clouds; and it dazzled me; and I closed my eyes for an instant; and when I looked again, the pyramid stood on its rock, perfect; and purple with the light from the edge of the sinking sun.

THE YOUNGER CHILDREN (*variously pleased*). I'm so glad! How nice! But what did Pthah say?

L. Neith did not wait to hear what he would say. When I turned back to look at her, she was gone; and I only saw the level white cloud form itself again, close to the arch of the sun as it sank. And as the last edge of the sun disappeared, the form of Pthah faded into a mighty shadow, and so passed away.

EGYPT. And was Neith's pyramid left?

L. Yes; but you could not think, Egypt, what a strange feeling of utter loneliness came over me when the presences of the two gods passed away. It seemed as if I had never known what it was to be alone before; and the unbroken line of the desert was terrible.

EGYPT. I used to feel that, when I was queen: sometimes I had to carve gods, for company, all over my palace. I would fain have seen real ones, if I could.

L. But listen a moment yet, for that was not quite all my dream. The twilight drew swiftly to the dark, and I could hardly see the great pyramid; when there came a heavy murmuring sound in the air; and a horned beetle, with terrible claws, fell on the sand at my feet, with a blow like the beat of a hammer. Then it stood up on its hind

claws, and waved its pincers at me: and its fore claws became strong arms, and hands; one grasping real iron pincers, and the other a huge hammer; and it had a helmet on its head, without any eyelet holes, that I could see. And its two hind claws became strong crooked legs, with feet bent inwards. And so there stood by me a dwarf, in glossy black armour, ribbed and embossed like a beetle's back, leaning on his hammer. And I could not speak for wonder; but he spoke with a murmur like the dying away of a beat upon a bell. He said, "I will make Neith's great pyramid small. I am the lower Pthah; and have power over fire. I can wither the strong things, and strengthen the weak: and everything that is great I can make small, and everything that is little I can make great." Then he turned to the angle of the pyramid and limped towards it. And the pyramid grew deep purple; and then red like blood, and then pale rose-colour, like fire. And I saw that it glowed with fire from within. And the lower Pthah touched it with the hand that held the pincers; and it sank down like the sand in an hour-glass,—then drew itself together, and sank, still, and became nothing, it seemed to me; but the armed dwarf stooped down, and took it into his hand, and brought it me, saying, "Everything that is great I can make like this pyramid; and give into men's hands to destroy." And I saw that he had a little pyramid in his hand, with as many courses in it as the large one; and built like that,—only so small. And because it glowed still, I was afraid to touch it; but Pthah said, "Touch it—for I have bound the fire within it, so that it cannot burn." So I touched it, and took it into my own hand; and it was cold; only red, like a ruby. And Pthah laughed, and became like a beetle again, and buried himself in the sand, fiercely; throwing it back over his shoulders. And it seemed to me as if he would draw me down with him into the sand; and I started back, and woke, holding the little pyramid so fast in my hand that it hurt me.

EGYPT. Holding WHAT in your hand?

L. The little pyramid.

EGYPT. Neith's pyramid?

L. Neith's, I believe; though not built for Asychis. I know only that it is a little rosy transparent pyramid, built of more courses of bricks than I can count, it being made so small. You don't believe me, of course, Egyptian infidel; but there it is. (*Giving crystal of rose Fluor.*)

(*Confused examination by crowded audience, over each other's shoulders and under each other's arms. Disappointment begins to manifest itself.*)

SIBYL (*not quite knowing why she and others are disappointed*). But you showed us this the other day!

L. Yes; but you would not look at it the other day.

SIBYL. But was all that fine dream only about this?

L. What finer thing could a dream be about than this? It is small, if you will; but when you begin to think of things rightly, the ideas of smallness and largeness pass away. The making of this pyramid was in reality just as wonderful as the dream I have been telling you, and just as incomprehensible. It was not, I suppose, as swift, but quite as grand things are done as swiftly. When Neith makes crystals of snow, it needs a great deal more marshalling of the atoms, by her flaming arrows, than it does to make crystals like this one; and that is done in a moment.

EGYPT. But how you *do* puzzle us! Why do you say Neith does it? You don't mean that she is a real spirit, do you?

L. What *I* mean, is of little consequence. What the Egyptians meant, who called her "Neith,"—or Homer, who called her "Athena,"—or Solomon, who called her by a word which the Greeks render as "Sophia," you must judge for yourselves. But her testimony is always the same, and all nations have received it: "I was by Him as one brought up with Him, and I was daily His delight; rejoicing in the habitable parts of the earth, and my delights were with the sons of men."

MARY. But is not that only a personification?

L. If it be, what will you gain by unpersonifying it, or what right have you to do so? Cannot you accept the

image given you, in its life; and listen, like children, to the words which chiefly belong to you as children: "I love them that love me, and those that seek me early shall find me?"

(*They are all quiet for a minute or two; questions begin to appear in their eyes.*)

I cannot talk to you any more to-day. Take that rose-crystal away with you, and think.

LECTURE III

THE CRYSTAL LIFE

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THE CRYSTAL LIFE

A very dull Lecture, wilfully brought upon themselves by the elder children. Some of the young ones have, however, managed to get in by mistake. SCENE, *the Schoolroom.*

L. So I am to stand up here merely to be asked questions, to-day, Miss Mary, am I?

MARY. Yes; and you must answer them plainly; without telling us any more stories. You are quite spoiling the children: the poor little things heads are turning round like kaleidoscopes; and they don't know in the least what you mean. Nor do we old ones, either, for that matter: to-day you must really tell us nothing but facts.

L. I am sworn; but you won't like it, a bit.

MARY. Now, first of all, what do you mean by "bricks"? —Are the smallest particles of minerals all of some accurate shape, like bricks?

L. I do not know, Miss Mary; I do not even know if anybody knows. The smallest atoms which are visibly and practically put together to make large crystals, may better be described as "limited in fixed directions" than as "of fixed forms." But I can tell you nothing clear about ultimate atoms: you will find the idea of little bricks or, perhaps, of little spheres, available for all the uses you will have to put it to.

MARY. Well, it's very provoking; one seems always to be stopped just when one is coming to the very thing one wants to know.

L. No, Mary, for we should not wish to know anything

but what is easily and assuredly knowable. There's no end to it. If I could show you, or myself, a group of ultimate atoms, quite clearly, in this magnifying glass, we should both be presently vexed because we could not break them in two pieces, and see their insides.

MARY. Well then, next, what do you mean by the flying of the bricks? What is it the atoms do, that is like flying?

L. When they are dissolved, or uncrystallised, they are really separated from each other, like a swarm of gnats in the air, or like a shoal of fish in the sea;—generally at about equal distances. In currents of solutions, or at different depths of them, one part may be more full of the dissolved atoms than another; but on the whole, you may think of them as equidistant, like the spots in the print of your gown. If they are separated by force of heat only, the substance is said to be melted; if they are separated by any other substance, as particles of sugar by water, they are said to be "dissolved." Note this distinction carefully, all of you.

DORA. I will be very particular. When next you tell me there isn't sugar enough in your tea, I will say, "It is not yet dissolved, sir."

L. I tell you what shall be dissolved, Miss Dora; and that's the present parliament, if the members get too saucy.

(DORA *folds her hands and casts down her eyes.*)

L. (*proceeds in state*). Now, Miss Mary, you know already, I believe, that nearly everything will melt, under a sufficient heat, like wax. Limestone melts (under pressure); sand melts; granite melts; the lava of a volcano is a mixed mass of many kinds of rocks, melted: and any melted substance nearly always, if not always, crystallises as it cools; the more slowly the more perfectly. Water melts at what we call the freezing, but might just as wisely, though not as conveniently, call the melting, point; and radiates as it cools into the most beautiful of all known crystals. Glass melts at a greater heat, and will crystallise, if you let it cool slowly enough, in stars, much like snow. Gold needs more heat to melt it, but

crystallises also exquisitely, as I will presently show you. Arsenic and sulphur crystallise from their vapours. Now in any of these cases, either of melted, dissolved, or vaporous bodies, the particles are usually separated from each other, either by heat, or by an intermediate substance; and in crystallising they are both brought nearer to each other, and packed, so as to fit as closely as possible: the essential part of the business being not the bringing together, but the packing. Who packed your trunk for you, last holidays, Isabel?

ISABEL. Lily does, always.

L. And how much can you allow for Lily's good packing, in guessing what will go into the trunk?

ISABEL. Oh! I bring twice as much as the trunk holds. Lily always gets everything in.

LILY. Ah! but, Isey, if you only knew what a time it takes! and since you've had those great hard buttons on your frocks, I can't do anything with them. Buttons won't go anywhere, you know.

L. Yes, Lily, it would be well if she only knew what a time it takes; and I wish any of us knew what a time crystallisation takes, for that is consummately fine packing. The particles of the rock are thrown down, just as Isabel brings her things—in a heap; and innumerable Lilies, not of the valley, but of the rock, come to pack them. But it takes such a time!

However, the best—out and out the best—way of understanding the thing, is to crystallise yourselves.

THE AUDIENCE. Ourselves!

L. Yes; not merely as you did the other day, carelessly, on the schoolroom forms; but carefully and finely, out in the playground. You can play at crystallisation there as much as you please.

KATHLEEN *and* JESSIE. Oh! how?—how?

L. First, you must put yourselves together, as close as you can, in the middle of the grass, and form, for first practice, any figure you like.

JESSIE. Any dancing figure, do you mean?

L. No; I mean a square, or a cross, or a diamond.

Any figure you like, standing close together. You had better outline it first on the turf, with sticks, or pebbles, so as to see that it is rightly drawn; then get into it and enlarge or diminish it at one side, till you are all quite in it, and no empty space left.

DORA. Crinoline and all?

L. The crinoline may stand eventually for rough crystalline surface, unless you pin it in; and then you may make a polished crystal of yourselves.

LILY. Oh, we'll pin it in—we'll pin it in!

L. Then, when you are all in the figure, let every one note her place, and who is next her on each side; and let the outsiders count how many places they stand from the corners.

KATHLEEN. Yes, yes,—and then?

L. Then you must scatter all over the playground—right over it from side to side, and end to end; and put yourselves all at equal distances from each other, everywhere. You needn't mind doing it very accurately, but so as to be nearly equidistant; not less than about three yards apart from each other, on every side.

JESSIE. We can easily cut pieces of string of equal length, to hold. And then?

L. Then at a given signal, let everybody walk, at the same rate, towards the outlined figure in the middle. You had better sing as you walk; that will keep you in good time. And as you close in towards it, let each take her place, and the next comers fit themselves in beside the first ones, till you are all in the figure again.

KATHLEEN. Oh! how we shall run against each other! What fun it will be!

L. No, no, Miss Katie; I can't allow any running against each other. The atoms never do that, whatever human creatures do. You must all know your places, and find your way to them without jostling.

LILY. But how ever shall we do that?

ISABEL. Mustn't the ones in the middle be the nearest, and the outside ones farther off—when we go away to scatter, I mean?

L. Yes; you must be very careful to keep your order; you will soon find out how to do it; it is only like soldiers forming square, except that each must stand still in her place as she reaches it, and the others come round her; and you will have much more complicated figures, afterwards, to form, than squares.

ISABEL. I'll put a stone at my place; then I shall know it.

L. You might each nail a bit of paper to the turf, at your place, with your name upon it: but it would be of no use, for if you don't know your places, you will make a fine piece of business of it, while you are looking for your names. And, Isabel, if with a little head, and eyes, and a brain, (all of them very good and serviceable of their kind, as such things go), you think you cannot know your place without a stone at it, after examining it well, —how do you think each atom knows its place, when it never was there before, and there's no stone at it?

ISABEL. But does every atom know its place?

L. How else could it get there?

MARY. Are they not attracted into their places?

L. Cover a piece of paper with spots, at equal intervals; and then imagine any kind of attraction you choose, or any law of attraction, to exist between the spots, and try how, on that permitted supposition, you can attract them into the figure of a Maltese cross, in the middle of the paper.

MARY (*having tried it*). Yes; I see that I cannot:— one would need all kinds of attractions, in different ways, at different places. But you do not mean that the atoms are alive?

L. What is it to be alive?

DORA. There now; you're going to be provoking, I know.

L. I do not see why it should be provoking to be asked what it is to be alive. Do you think you don't know whether you are alive or not?

(ISABEL *skips to the end of the room and back.*)

L. Yes, Isabel, that's all very fine; and you and I

may call that being alive: but a modern philosopher calls it being in a "mode of motion." It requires a certain quantity of heat to take you to the sideboard; and exactly the same quantity to bring you back again. That's all.

ISABEL. No, it isn't. And besides, I'm not hot.

L. I am, sometimes, at the way they talk. However, you know, Isabel, you might have been a particle of a mineral, and yet have been carried round the room, or anywhere else, by chemical forces, in the liveliest way.

ISABEL. Yes; but I wasn't carried: I carried myself.

L. The fact is, mousie, the difficulty is not so much to say what makes a thing alive, as what makes it a Self. As soon as you are shut off from the rest of the universe into a Self, you begin to be alive.

VIOLET (*indignant*). Oh, surely—surely that cannot be so. Is not all the life of the soul in communion, not separation?

L. There can be no communion where there is no distinction. But we shall be in an abyss of metaphysics presently, if we don't look out; and besides, we must not be too grand, to-day, for the younger children. We'll be grand, some day, by ourselves, if we must (*The younger children are not pleased, and prepare to remonstrate; but, knowing by experience, that all conversations in which the word "communion" occurs, are unintelligible, think better of it.*) Meantime, for broad answer about the atoms. I do not think we should use the word "life," of any energy which does not belong to a given form. A seed, or an egg, or a young animal, are properly called "alive" with respect to the force belonging to those forms, which consistently developes that form, and no other. But the force which crystallises a mineral appears to be chiefly external, and it does not produce an entirely determinate and individual form, limited in size, but only an aggregation, in which some limiting laws must be observed.

MARY. But I do not see much difference, that way, between a crystal and a tree.

L. Add, then, that the mode of the energy in a living thing implies a continual change in its elements; and a

period for its end. So you may define life by its attached negative, death; and still more by its attached positive, birth. But I won't be plagued any more about this, just now; if you choose to think the crystals alive, do, and welcome. Rocks have always been called "living" in their native place.

MARY. There's one question more; then I've done.

L. Only one?

MARY. Only one.

L. But if it is answered, won't it turn into two?

MARY. No; I think it will remain single, and be comfortable.

L. Let me hear it.

MARY. You know, we are to crystallise ourselves out of the whole playground. Now, what playground have the minerals? Where are they scattered before they are crystallised; and where are the crystals generally made?

L. That sounds to me more like three questions than one, Mary. If it is only one, it is a wide one.

MARY. I did not say anything about the width of it.

L. Well, I must keep it within the best compass I can. When rocks either dry from a moist state, or cool from a heated state, they necessarily alter in bulk; and cracks, or open spaces, form in them in all directions. These cracks must be filled up with solid matter, or the rock would eventually become a ruinous heap. So, sometimes by water, sometimes by vapour, sometimes nobody knows how, crystallisable matter is brought from somewhere, and fastens itself in these open spaces, so as to bind the rock together again, with crystal cement. A vast quantity of hollows are formed in lavas by bubbles of gas, just as the holes are left in bread well baked. In process of time these cavities are generally filled with various crystals.

MARY. But where does the crystallising substance come from?

L. Sometimes out of the rock itself; sometimes from below or above, through the veins. The entire substance of the contracting rock may be filled with liquid, pressed into it so as to fill every pore;—or with mineral vapour;—

or it may be so charged at one place, and empty at another. There's no end to the "may be's." But all that you need fancy, for our present purpose, is that hollows in the rocks, like the caves in Derbyshire, are traversed by liquids or vapour containing certain elements in a more or less free or separate state, which crystallise on the cave walls.

SIBYL. There now;—Mary has had all her questions answered: it's my turn to have mine.

L. Ah, there's a conspiracy among you, I see. I might have guessed as much.

DORA. I'm sure you ask us questions enough! How can you have the heart, when you dislike so to be asked them yourself?

L. My dear child, if people do not answer questions, it does not matter how many they are asked, because they've no trouble with them. Now, when I ask you questions, I never expect to be answered; but when you ask me, you always do; and it's not fair.

DORA. Very well, we shall understand, next time.

SIBYL. No, but seriously, we all want to ask one thing more, quite dreadfully.

L. And I don't want to be asked it, quite dreadfully; but you'll have your own way, of course.

SIBYL. We none of us understand about the lower Pthah. It was not merely yesterday; but in all we have read about him in Wilkinson, or in any book, we cannot understand what the Egyptians put their god into that ugly little deformed shape for.

L. Well, I'm glad it's that sort of question; because I can answer anything I like, to that.

EGYPT. Anything you like will do quite well for us; we shall be pleased with the answer, if you are.

L. I am not so sure of that, most gracious queen; for I must begin by the statement that queens seem to have disliked all sorts of work, in those days, as much as some queens dislike sewing to-day.

EGYPT. Now, it's too bad! and just when I was trying to say the civillest thing I could!

L. But, Egypt, why did you tell me you disliked sewing so?

EGYPT. Did not I show you how the thread cuts my fingers? and I always get cramp, in my neck, if I sew long.

L. Well, I suppose the Egyptian queens thought everybody got cramp in their neck, if they sewed long; and that thread always cut people's fingers. At all events, every kind of manual labour was despised both by them, and the Greeks; and, while they owned the real good and fruit of it, they yet held it a degradation to all who practised it. Also, knowing the laws of life thoroughly, they perceived that the special practice necessary to bring any manual art to perfection strengthened the body distortedly; one energy or member gaining at the expense of the rest. They especially dreaded and despised any kind of work that had to be done near fire: yet, feeling what they owed to it in metal-work, as the basis of all other work, they expressed this mixed reverence and scorn in the varied types of the lame Hephæstus, and the lower Pthah.

SIBYL. But what did you mean by making him say "Everything great I can make small, and everything small great?"

L. I had my own separate meaning in that. We have seen in modern times the power of the lower Pthah developed in a separate way, which no Greek nor Egyptian could have conceived. It is the character of pure and eyeless manual labour to conceive everything as subjected to it: and, in reality, to disgrace and diminish all that is so subjected; aggrandising itself, and the thought of itself, at the expense of all noble things. I heard an orator, and a good one too, at the Working Men's College, the other day, make a great point in a description of our railroads; saying, with grandly conducted emphasis, "They have made man greater, and the world less." His working audience were mightily pleased; they thought it so very fine a thing to be made bigger themselves; and all the rest of the world less. I should have enjoyed asking them (but it would have been a pity—they were so pleased), how much less they would like to have the world made;—

and whether, at present, those of them really felt themselves the biggest men, who lived in the least houses.

SIBYL. But then, why did you make Pthah say that he could make weak things strong, and small things great?

L. My dear, he is a boaster and self-assertor, by nature; but it is so far true. For instance, we used to have a fair in our neighbourhood—a very fine fair we thought it. You never saw such an one; but if you look at the engraving of Turner's "St. Catherine's Hill," you will see what it was like. There were curious booths, carried on poles; and peep-shows; and music, with plenty of drums and cymbals; and much barley-sugar and gingerbread, and the like: and in the alleys of this fair the London populace would enjoy themselves, after their fashion, very thoroughly. Well, the little Pthah set to work upon it one day; he made the wooden poles into iron ones, and put them across, like his own crooked legs, so that you always fall over them if you don't look where you are going; and he turned all the canvas into panes of glass, and put it up on his iron cross-poles; and made all the little booths into one great booth;—and people said it was very fine, and a new style of architecture; and Mr. Dickens said nothing was ever like it in Fairy-land, which was very true. And then the little Pthah set to work to put fine fairings in it; and he painted the Nineveh bulls afresh, with the blackest eyes he could paint, (because he had none himself), and he got the angels down from Lincoln choir, and gilded their wings like his gingerbread of old times; and he sent for everything else he could think of, and put it in his booth. There are the casts of Niobe and her children; and the Chimpanzee; and the wooden Caffres and New-Zealanders; and the Shakespeare House; and Le Grand Blondin, and Le Petit Blondin; and Handel; and Mozart; and no end of shops, and buns, and beer; and all the little-Pthah-worshippers say, never was anything so sublime!

SIBYL. Now, do you mean to say you never go to these Crystal Palace concerts? They're as good as good can be.

L. I don't go to the thundering things with a million of bad voices in them. When I want a song, I get Julia

Mannering and Lucy Bertram and Counsellor Pleydell to sing "We be three poor Mariners" to me; then I've no headache next morning. But I do go to the smaller concerts, when I can; for they are very good, as you say, Sibyl: and I always get a reserved seat somewhere near the orchestra, where I am sure I can see the kettle-drummer drum.

SIBYL. Now *do* be serious, for one minute.

L. I am serious—never was more so. You know one can't see the modulation of violinists' fingers, but one can see the vibration of the drummer's hand; and it's lovely.

SIBYL. But fancy going to a concert, not to hear, but to see!

L. Yes, it is very absurd. The quite right thing, I believe, is to go there to talk. I confess, however, that in most music, when very well done, the doing of it is to me the chiefly interesting part of the business. I'm always thinking how good it would be for the fat, supercilious people, who care so little for their half-crown's worth, to be set to try and do a half-crown's worth of anything like it.

MARY. But surely that Crystal Palace is a great good help to the people of London?

L. The fresh air of the Norwood hills is, or was, my dear; but they are spoiling that with smoke as fast as they can. And the palace (as they call it) is a better place for them, by much, than the old fair; and it is always there, instead of for three days only; and it shuts up at proper hours of night. And good use may be made of the things in it, if you know how: but as for its teaching the people, it will teach them nothing but the lowest of the lower Pthah's work—nothing but hammer and tongs. I saw a wonderful piece, of his doing, in the place, only the other day. Some unhappy metal-worker—I am not sure if it was not a metal-working firm—had taken three years to make a Golden eagle.

SIBYL. Of real gold?

L. No; of bronze, or copper, or some of their foul patent metals—it is no matter what. I meant a model of

our chief British eagle. Every feather was made separately; and every filament of every feather separately, and so joined on; and all the quills modelled of the right length and right section, and at last the whole cluster of them fastened together. You know, children, I don't think much of my own drawing; but take my proud word for once, that when I go to the Zoological Gardens, and happen to have a bit of chalk in my pocket, and the Grey Harpy will sit, without screwing his head round, for thirty seconds, —I can do a better thing of him in that time than the three years' work of this industrious firm. For, during the thirty seconds, the eagle is my object,—not myself; and during the three years, the firm's object, in every fibre of bronze it made, was itself, and not the eagle. That is the true meaning of the little Pthah's having no eyes—he can see only himself. The Egyptian beetle was not quite the full type of him; our northern ground beetle is a truer one. It is beautiful to see it at work, gathering its treasures (such as they are) into little round balls; and pushing them home with the strong wrong end of it,—head downmost all the way,—like a modern political economist with his ball of capital, declaring that a nation can stand on its vices better than on its virtues. But away with you, children, now for I'm getting cross.

Dora. I'm going down stairs; I shall take care, at any rate, that there are no little Pthahs in the kitchen cupboards.

LECTURE IV

THE CRYSTAL ORDERS

LECTURE IV

THE CRYSTAL ORDERS

A working Lecture, in the large Schoolroom; with experimental Interludes. The great bell has rung unexpectedly.

KATHLEEN (*entering disconsolate, though first at the summons*). Oh dear, oh dear, what a day! Was ever anything so provoking! just when we wanted to crystallise ourselves;—and I'm sure it's going to rain all day long.

L. So am I, Kate. The sky has quite an Irish way with it. But I don't see why Irish girls should also look so dismal. Fancy that you don't want to crystallise yourselves: you didn't, the day before yesterday, and you were not unhappy when it rained then.

FLORRIE. Ah! but we do want to-day; and the rain's so tiresome.

L. That is to say, children, that because you are all the richer by the expectation of playing at a new game, you choose to make yourselves unhappier than when you had nothing to look forward to, but the old ones.

ISABEL. But then, to have to wait—wait—wait; and before we've tried it;—and perhaps it will rain to-morrow, too!

L. It may also rain the day after to-morrow. We can make ourselves uncomfortable to any extent with perhapses, Isabel. You may stick perhapses into your little minds, like pins, till you are as uncomfortable as the Lilliputians made Gulliver with their arrows, when he would not lie quiet.

ISABEL. But what *are* we to do to-day?

L. To be quiet, for one thing, like Gulliver when he saw there was nothing better to be done. And to practise

patience. I can tell you children, *that* requires nearly as much practising as music; and we are continually losing our lessons when the master comes. Now, to-day, here's a nice little adagio lesson for us, if we play it properly.

ISABEL. But I don't like that sort of lesson. I can't play it properly.

L. Can you play a Mozart sonata yet, Isabel? The more need to practise. All one's life is a music, if one touches the notes rightly, and in time. But there must be no hurry.

KATHLEEN. I'm sure there's no music in stopping in on a rainy day.

L. There's no music in a "rest," Katie, that I know of: but there's the making of music in it. And people are always missing that part of the life-melody; and scrambling on without counting—not that it's easy to count; but nothing on which so much depends ever *is* easy. People are always talking of perseverance, and courage, and fortitude; but patience is the finest and worthiest part of fortitude,—and the rarest, too. I know twenty persevering girls for one patient one: but it is only that twenty-first who can do her work, out and out, or enjoy it. For patience lies at the root of all pleasures, as well as of all powers. Hope herself ceases to be happiness, when Impatience companions her.

(ISABEL *and* LILY *sit down on the floor, and fold their hands. The others follow their example.*)

Good children! but that's not quite the way of it, neither. Folded hands are not necessarily resigned ones. The Patience who really smiles at grief usually stands, or walks, or even runs: she seldom sits; though she may sometimes have to do it, for many a day, poor thing, by monuments; or like Chaucer's, "with facë pale, upon a hill of sand." But we are not reduced to that to-day. Suppose we use this calamitous forenoon to choose the shapes we are to crystallise into? We know nothing about them yet.

(*The pictures of resignation rise from the floor, not in the patientest manner. General applause.*)

MARY (*with one or two others*). The very thing we wanted to ask you about!

LILY. We looked at the books about crystals, but they are so dreadful.

L. Well, Lily, we must go through a little dreadfulness, that's a fact: no road to any good knowledge is wholly among the lilies and the grass; there is rough climbing to be done always. But the crystal-books are a little *too* dreadful, most of them, I admit; and we shall have to be content with very little of their help. You know, as you cannot stand on each other's heads, you can only make yourselves into the sections of crystals,—the figures they show when they are cut through; and we will choose some that will be quite easy. You shall make diamonds of yourselves——

ISABEL. Oh, no, no! we won't be diamonds, please.

L. Yes, you shall, Isabel; they are very pretty things, if the jewellers, and the kings and queens, would only let them alone. You shall make diamonds of yourselves, and rubies of yourselves, and emeralds; and Irish diamonds; two of those—with Lily in the middle of one, which will be very orderly, of course; and Kathleen in the middle of the other, for which we will hope the best;—and you shall make Derbyshire spar of yourselves, and Iceland spar, and gold, and silver, and—Quicksilver there's enough of in you, without any making.

MARY. Now, you know, the children will be getting quite wild: we must really get pencils and paper, and begin properly.

L. Wait a minute, Miss Mary; I think as we've the schoolroom clear to-day, I'll try to give you some notion of the three great orders or ranks of crystals, into which all the others seem more or less to fall. We shall only want one figure a day, in the playground; and that can be drawn in a minute: but the general ideas had better be fastened first. I must show you a great many minerals; so let me have three tables wheeled into the three windows, that we may keep our specimens separate;—we will keep the three orders of crystals on separate tables.

(*First Interlude, of pushing and pulling, and spreading of baize covers.* VIOLET, *not particularly minding what she is about, gets herself jammed into a corner, and bid to stand out of the way; on which, she devotes herself to meditation.*)

VIOLET (*after interval of meditation*). How strange it is that everything seems to divide into threes!

L. Everything doesn't divide into threes. Ivy won't, though shamrock will; and daisies won't, though lilies will.

VIOLET. But all the nicest things seem to divide into threes.

L. Violets won't.

VIOLET. No; I should think not, indeed! But I mean the great things.

L. I've always heard the globe had four quarters.

ISABEL. Well; but you know you said it hadn't any quarters at all. So mayn't it really be divided into three?

L. If it were divided into no more than three, on the outside of it, Isabel, it would be a fine world to live in; and if it were divided into three in the inside of it, it would soon be no world to live in at all.

DORA. We shall never get to the crystals, at this rate. (*Aside to* MARY.) We will get off into political economy before we know where we are. (*Aloud.*) But the crystals are divided into three, then?

L. No; but there are three general notions by which we may best get hold of them. Then between these notions there are other notions.

LILY (*alarmed*). A great many? And shall we have to learn them all?

L. More than a great many—a quite infinite many. So you cannot learn them all.

LILY (*greatly relieved*). Then may we only learn the three?

L. Certainly; unless, when you have got those three notions, you want to have some more notions;—which would not surprise me. But we'll try for the three, first. Katie, you broke your coral necklace this morning?

KATHLEEN. Oh! who told you? It was in jumping. I'm so sorry!

L. I'm very glad. Can you fetch me the beads of it?

KATHLEEN. I've lost some; here are the rest in my pocket, if I can only get them out.

L. You mean to get them out some day, I suppose; so try now. I want them.

(KATHLEEN *empties her pocket on the floor. The beads disperse. The School disperses also. Second Interlude—hunting piece.*)

L. (*after waiting patiently for a quarter of an hour, to* ISABEL, *who comes up from under the table with her hair all about her ears, and the last findable beads in her hand*). Mice are useful little things sometimes. Now mousie, I want all those beads crystallised. How many ways are there of putting them in order?

ISABEL. Well, first one would string them, I suppose?

L. Yes, that's the first way. You cannot string ultimate atoms; but you can put them in a row, and then they fasten themselves together, somehow, into a long rod or needle. We will call these "*Needle*-crystals." What would be the next way?

ISABEL. I suppose, as we are to get together in the playground, when it stops raining, in different shapes?

L. Yes; put the beads together, then, in the simplest form you can, to begin with. Put them into a square, and pack them close.

ISABEL (*after careful endeavour*). I can't get them closer.

L. That will do. Now you may see, beforehand, that if you try to throw yourselves into square in this confused way, you will never know your places; so you had better consider every square as made of rods, put side by side. Take four beads of equal size, first, Isabel; put them into a little square. That, you may consider as made up of two rods of two beads each. Then you can make a square a size larger, out of three rods of three. Then the next square may be a size larger. How many rods, Lily?

LILY. Four rods of four beads each, I suppose.

L. Yes, and then five rods of five, and so on. But now, look here; make another square of four beads again. You see they leave a little opening in the centre.

ISABEL (*pushing two opposite ones closer together*). Now they don't.

L. No; but now it isn't a square; and by pushing the two together you have pushed the two others farther apart.

ISABEL. And yet, somehow, they all seem closer than they were!

L. Yes; for before, each of them only touched two of the others, but now each of the two in the middle touches the other three. Take away one of the outsiders, Isabel: now you have three in a triangle—the smallest triangle you can make out of the beads. Now put a rod of three beads on at once side. So, you have a triangle of six beads; but just the shape of the first one. Next a rod of four on the side of that; and you have a triangle of ten beads: then a rod of five on the side of that; and you have a triangle of fifteen. Thus you have a square with five beads on the side and a triangle with five beads on the side; equal sided, therefore, like the square. So, however few or many you may be, you may soon learn how to crystallise quickly into these two figures, which are the foundation of form in the commonest, and therefore actually the most important, as well as in the rarest, and therefore, by our esteem, the most important, minerals of the world. Look at this in my hand.

VIOLET. Why, if is leaf gold!

L. Yes; but beaten by no man's hammer; or rather, not beaten at all, but woven. Besides, feel the weight of it. There is gold enough there to gild the walls and ceiling, if it were beaten thin.

VIOLET. How beautiful! And it glitters like a leaf covered with frost.

L. You only think it so beautiful because you know it is gold. It is not prettier, in reality, than a bit of brass: for it is Transylvanian gold; and they say there is a foolish gnome in the mines there, who is always wanting to live in the moon, and so alloys all the gold with a little

silver. I don't know how that may be: but the silver always *is* in the gold; and if he does it, it's very provoking of him, for no gold is woven so fine anywhere else.

MARY (*who has been looking through her magnifying glass*). But this is not woven. This is all made of little triangles.

L. Say "patched," then, if you must be so particular. But if you fancy all those triangles, small as they are (and many of them are infinitely small), made up again of rods, and those of grains, as we built our great triangle of the beads, what word will you take for the manufacture?

MAY. There's no word—it is beyond words.

L. Yes; and that would matter little, were it not beyond thoughts too. But, at all events, this yellow leaf of dead gold, shed, not from the ruined woodlands, but the ruined rocks, will help you to remember the second kind of crystals, *Leaf*-crystals, or *Foliated* crystals; though I show you the form in gold first only to make a strong impression on you, for gold is not generally, or characteristically, crystallised in leaves; the real type of foliated crystals is this thing, Mica; which if you once feel well, and break well, you will always know again; and you will often have occasion to know it, for you will find it everywhere, nearly, in hill countries.

KATHLEEN. If we break it well! May we break it?

L. To powder, if you like.

(*Surrenders plate of brown mica to public investigation. Third Interlude. It sustains severely philosophical treatment at all hands.*)

FLORRIE (*to whom the last fragments have descended*). Always leaves, and leaves, and nothing but leaves, or white dust!

L. That dust itself is nothing but finer leaves.

(*Shows them to* FLORRIE *through magnifying glass.*)

ISABEL (*peeping over* FLORRIE'S *shoulder*). But then this bit under the glass looks like that bit out of the glass! If we could break this bit under the glass, what would it be like?

L. It would be all leaves still.

ISABEL. And then if we broke those again?

L. All less leaves still.

ISABEL (*impatient*). And if we broke them again, and again, and again, and again, and again?

L. Well, I suppose you would come to a limit, if you could only see it. Notice that the little flakes already differ somewhat from the large ones: because I can bend them up and down, and they stay bent; while the large flake, though it bent easily a little way, sprang back when you let it go, and broke, when you tried to bend it far. And a large mass would not bend at all.

MARY. Would that leaf gold separate into finer leaves, in the same way?

L. No; and therefore, as I told you, it is not a characteristic specimen of a foliated crystallisation. The little triangles are portions of solid crystals, and so they are in this, which looks like a black mica; but you see it is made up of triangles, like the gold, and stands, almost accurately, as an intermediate link, in crystals, between mica and gold. Yet this is the commonest, as gold the rarest, of metals.

MARY. Is it iron? I never saw iron so bright.

L. It is rust of iron, finely crystallised: from its resemblance to mica, it is often called micaceous iron.

KATHLEEN. May we break this, too?

L. No, for I could not easily get such another crystal; besides, it would not break like the mica; it is much harder. But take the glass again, and look at the fineness of the jagged edges of the triangles where they lap over each other. The gold has the same: but you see them better here, terrace above terrace, countless, and in successive angles, like superb fortified bastions.

MAY. But all foliated crystals are not made of triangles?

L. Far from it; mica is occasionally so, but usually of hexagons; and here is a foliated crystal made of squares, which will show you that the leaves of the rock-land have their summer green, as well as their autumnal gold.

FLORRIE. Oh! oh! oh! (*jumps for joy*).

L. Did you never see a bit of green leaf before, Florrie?

FLORRIE. Yes, but never so bright as that, and not in a stone.

L. If you will look at the leaves of the trees in sunshine after a shower, you will find they are much brighter than that; and surely they are none the worse for being on stalks instead of in stones?

FLORRIE. Yes, but then there are so many of them, one never looks, I suppose.

L. Now you have it, Florrie.

VIOLET (*sighing*). There are so many beautiful things we never see!

L. You need not sigh for that, Violet; but I will tell you what you should all sigh for,—that there are so many ugly things we never see.

VIOLET. But we don't want to see ugly things!

L. You had better say, "We don't want to suffer them." You ought to be glad in thinking how much more beauty God has made, than human eyes can ever see; but not glad in thinking how much more evil man has made, than his own soul can ever conceive, much more than his hands can ever heal.

VIOLET. I don't understand;—how is that like the leaves?

L. The same law holds in our neglect of multiplied pain, as in our neglect of multiplied beauty. Florrie jumps for joy at sight of half an inch of a green leaf in a brown stone; and takes more notice of it than of all the green in the wood: and you, or I, or any of us, would be unhappy if any single human creature beside us were in sharp pain; but we can read, at breakfast, day after day, of men being killed, and of women and children dying of hunger, faster than the leaves strew the brooks in Vallombrosa;—and then go out to play croquet, as if nothing had happened.

MAY. But we do not see the people being killed or dying.

L. You did not see your brother, when you got the telegram the other day, saying he was ill, May; but you cried for him; and played no croquet. But we cannot

talk of these things now; and what is more, you must let me talk straight on, for a little while; and ask no questions till I've done: for we branch ("exfoliate," I should say, mineralogically) always into something else,—though that's my fault more than yours; but I must go straight on now. You have got a distinct notion, I hope, of leaf-crystals; and you see the sort of look they have: you can easily remember that "folium" is Latin for a leaf, and that the separate flakes of mica, or any other such stones, are called "folia;" but, because mica is the most characteristic of these stones, other things that are like it in structure are called "micas;" thus we have Uran-mica, which is the green leaf I showed you; and Copper-mica, which is another like it, made chiefly of copper; and this foliated iron is called "micaceous iron." You have then these two great orders, Needle-crystals, made (probably) of grains in rows; and Leaf-crystals, made (probably) of needles interwoven; now, lastly, there are crystals of a third order, in heaps, or knots, or masses, which may be made, either of leaves laid one upon another, or of needles bound like Roman fasces; and mica itself, when it is well crystallised, puts itself into such masses, as if to show us how others are made. Here is a brown six-sided crystal, quite as beautifully chiselled at the sides as any castle tower; but you see it is entirely built of folia of mica, one laid above another, which break away the moment I touch the edge with my knife. Now, here is another hexagonal tower, of just the same size and colour, which I want you to compare with the mica carefully; but as I cannot wait for you to do it just now, I must tell you quickly what main differences to look for. First, you will feel it is far heavier than the mica. Then, though its surface looks quite micaceous in the folia of it, when you try them with the knife, you will find you cannot break them away——

KATHLEEN. May I try?

L. Yes, you mistrusting Katie. Here's my strong knife for you. (*Experimental pause.* KATHLEEN *doing her best.*) You'll have that knife shutting on your finger

presently, Kate; and I don't know a girl who would like less to have her hand tied up for a week.

KATHLEEN (*who also does not like to be beaten,—giving up the knife despondently*). What *can* the nasty hard thing be?

L. It is nothing but indurated clay, Kate: very hard set certainly, yet not so hard as it might be. If it were thoroughly well crystallised, you would see none of those micaceous fractures; and the stone would be quite red and clear, all through.

KATHLEEN. Oh, cannot you show us one?

L. Egypt can, if you ask her; she has a beautiful one in the clasp of her favourite bracelet.

KATHLEEN. Why, that's a ruby!

L. Well, so is that thing you've been scratching at.

KATHLEEN. My goodness!

(*Takes up the stone again, very delicately; and drops it. General consternation.*)

L. Never mind, Katie; you might drop it from the top of the house, and do it no harm. But though you really are a very good girl, and as good-natured as anybody can possibly be, remember, you have your faults, like other people; and, if I were you, the next time I wanted to assert anything energetically, I would assert it by "my badness," not "my goodness."

KATHLEEN. Ah, now, it's too bad of you!

L. Well, then, I'll invoke, on occasion, my "too-badness." But you may as well pick up the ruby, now you have dropped it; and look carefully at the beautiful hexagonal lines which gleam on its surface: and here is a pretty white sapphire (essentially the same stone as the ruby), in which you will see the same lovely structure, like the threads of the finest white cobweb. I do not know what is the exact method of a ruby's construction; but you see by these lines, what fine construction there *is*, even in this hardest of stones (after the diamond), which usually appears as a massive lump or knot. There is therefore no real mineralogical distinction between needle crystals and knotted crystals, but, practically crystallised

masses throw themselves into one of the three groups we have been examining to-day; and appear either as Needles, as Folia, or as Knots; when they are in needles (or fibres), they make the stones or rocks formed out of them "*fibrous;*" when they are in folia, they make them "*foliated;*" when they are in knots (or grains), "*granular.*" Fibrous rocks are comparatively rare, in mass; but fibrous minerals are innumerable; and it is often a question which really no one but a young lady could possibly settle, whether one should call the fibres composing them "threads" or "needles." Here is amianthus, for instance, which is quite as fine and soft as any cotton thread you ever sewed with; and here is sulphide of bismuth, with sharper points and brighter lustre than your finest needles have; and fastened in white webs of quartz more delicate than your finest lace; and here is sulphide of antimony, which looks like mere purple wool, but it is all of purple needle crystals; and here is red oxide of copper (you must not breathe on it as you look, or you may blow some of the films of it off the stone), which is simply a woven tissue of scarlet silk. However, these finer thread forms are comparatively rare, while the bolder and needle-like crystals occur constantly; so that, I believe, "Needle-crystal" is the best word, (the grand one is "Acicular crystal," but Sibyl will tell you it is all the same, only less easily understood; and therefore more scientific). Then the Leaf-crystals, as I said, form an immense mass of foliated rocks; and the Granular crystals, which are of many kinds, form essentially granular, or granitic and porphyritic rocks: and it is always a point of more interest to me (and I think will ultimately be to you), to consider the causes which force a given mineral to take any one of these three general forms, than what the peculiar geometrical limitations are, belonging to its own crystals.[1] It is more interesting to me, for instance, to try and find out why the red oxide of copper, usually crystallising in cubes or octahedrons, makes itself exquisitely, out of its cubes, into this red silk

[1] Note iv.

in one particular Cornish mine, than what are the absolutely necessary angles of the octahedron, which is its common form. At all events, that mathematical part of crystallography is quite beyond girls' strength; but these questions of the various tempers and manners of crystals are not only comprehensible by you, but full of the most curious teaching for you. For in the fulfilment, to the best of their power, of their adopted form under given circumstances, there are conditions entirely resembling those of human virtue; and indeed expressible under no term so proper as that of the Virtue, or Courage of crystals:—which, if you are not afraid of the crystals making you ashamed of yourselves, we will try to get some notion of, to-morrow. But it will be a bye-lecture, and more about yourselves than the minerals. Don't come unless you like.

MARY. I'm sure the crystals will make us ashamed of ourselves; but we'll come, for all that.

L. Meantime, look well and quietly over these needle, or thread crystals, and those on the other two tables, with magnifying glasses; and see what thoughts will come into your little heads about them. For the best thoughts are generally those which come without being forced, one does not know how. And so I hope you will get through your wet day patiently.

LECTURE V

CRYSTAL VIRTUES

LECTURE V

CRYSTAL VIRTUES

A quiet talk, in the afternoon, by the sunniest window of the Drawing-room. Present, FLORRIE, ISABEL, MAY, LUCILLA, KATHLEEN, DORA, MARY, *and some others, who have saved time for the bye-Lecture.*

L. So you have really come, like good girls, to be made ashamed of yourselves?

DORA (*very meekly*). No, we needn't be made so; we always are.

L. Well, I believe that's truer than most pretty speeches: but you know, you saucy girl, some people have more reason to be so than others. Are you sure everybody is, as well as you?

THE GENERAL VOICE. Yes, yes; everybody.

L. What! Florrie ashamed of herself?

(FLORRIE *hides behind the curtain.*)

L. And Isabel?

(ISABEL *hides under the table.*)

L. And May?

(MAY *runs into the corner behind the piano.*)

L. And Lucilla?

(LUCILLA *hides her face in her hands.*)

L. Dear, dear; but this will never do. I shall have to tell you of the faults of the crystals, instead of virtues, to put you in heart again.

MAY (*coming out of her corner*). Oh! have the crystals faults, like us?

L. Certainly, May. Their best virtues are shown in fighting their faults. And some have a great many faults; and some are very naughty crystals indeed.

FLORRIE (*from behind her curtain*). As naughty as me?

ISABEL (*peeping from under the table cloth*). Or me?

L. Well, I don't know. They never forget their syntax, children, when once they've been taught it. But I think some of them are, on the whole, worse than any of you. Not that it's amiable of you to look so radiant, all in a minute, on that account.

DORA. Oh! but it's so much more comfortable.

(*Everybody seems to recover their spirits. Eclipse of* FLORRIE *and* ISABEL *terminates.*)

L. What kindly creatures girls are, after all, to their neighbours' failings! I think you may be ashamed of yourselves indeed, now, children! I can tell you, you shall hear of the highest crystalline merits that I can think of, to-day: and I wish there were more of them; but crystals have a limited, though a stern, code of morals; and their essential virtues are but two;—the first is to be pure, and the second to be well shaped.

MARY. Pure! Does that mean clear—transparent?

L. No; unless in the case of a transparent substance. You cannot have a transparent crystal of gold; but you may have a perfectly pure one.

ISABEL. But you said that it was the shape that made things be crystals; therefore, oughtn't their shape to be their first virtue, not their second?

L. Right, you troublesome mousie. But I call their shape only their second virtue, because it depends on time and accident, and things which the crystal cannot help. If it is cooled too quickly, or shaken, it must take what shape it can; but it seems as if, even then, it had in itself the power of rejecting impurity, if it has crystalline life enough. Here is a crystal of quartz, well enough shaped in its way; but it seems to have been languid and sick at heart; and some white milky substance has got into it, and mixed itself up with it, all through. It makes the quartz quite yellow, if you hold it up to the light, and milky blue on the surface. Here is another, broken into a thousand separate facets, and out of all traceable shape; but as pure as a mountain spring. I like this one best.

THE AUDIENCE. So do I—and I—and I.

MARY. Would a crystallographer?

L. I think so. He would find many more laws curiously exemplified in the irregularly grouped but pure crystal. But it is a futile question, this of first or second. Purity is in most cases a prior, if not a nobler, virtue; at all events it is most convenient to think about it first.

MARY. But what ought we to think about it? Is there much to be thought—I mean, much to puzzle one?

L. I don't know what you call "much." It is a long time since I met with anything in which there was little. There's not much in this, perhaps. The crystal must be either dirty or clean,—and there's an end. So it is with one's hands, and with one's heart—only you can wash your hands without changing them, but not hearts, nor crystals. On the whole, while you are young, it will be as well to take care that your hearts don't want much washing; for they may perhaps need wringing also, when they do.

(*Audience doubtful and uncomfortable.* LUCILLA *at last takes courage.*)

LUCILLA. Oh! but surely, sir, we cannot make our hearts clean?

L. Not easily, Lucilla; so you had better keep them so, when they are.

LUCILLA. When they are! But, sir——

L. Well?

LUCILLA. Sir—surely—are we not told that they are all evil?

L. Wait a little, Lucilla: that is difficult ground you are getting upon; and we must keep to our crystals, till at least we understand what *their* good and evil consist in; they may help us afterwards to some useful hints about our own. I said that their goodness consisted chiefly in purity of substance, and perfectness of form: but those are rather the *effects* of their goodness, than the goodness itself. The inherent virtues of the crystals, resulting in these outer conditions, might really seem to be best described in the words we should use respecting living

creatures—" force of heart " and " steadiness of purpose." There seem to be in some crystals, from the beginning, an unconquerable purity of vital power, and strength of crystal spirit. Whatever dead substance, unacceptant of this energy, comes in their way, is either rejected, or forced to take some beautiful subordinate form; the purity of the crystal remains unsullied, and every atom of it bright with coherent energy. Then the second condition is, that from the beginning of its whole structure, a fine crystal seems to have determined that it will be of a certain size and of a certain shape; it persists in this plan, and completes it. Here is a perfect crystal of quartz for you. It is of an unusual form, and one which it might seem very difficult to build—a pyramid with convex sides, composed of other minor pyramids. But there is not a flaw in its contour throughout; not one of its myriads of component sides but is as bright as a jeweller's facetted work (and far finer, if you saw it close). The crystal points are as sharp as javelins; their edges will cut glass with a touch. Anything more resolute, consummate, determinate in form, cannot be conceived. Here, on the other hand, is a crystal of the same substance, in a perfectly simple type of form—a plain six-sided prism; but from its base to its point,—and it is nine inches long,—it has never for one instant made up its mind what thickness it will have. It seems to have begun by making itself as thick as it thought possible with the quantity of material at command. Still not being as thick as it would like to be, it has clumsily glued on more substance at one of its sides. Then it has thinned itself, in a panic of economy; then puffed itself out again; then starved one side to enlarge another; then warped itself quite out of its first line. Opaque, rough-surfaced, jagged on the edge, distorted in the spine, it exhibits a quite human image of decrepitude and dishonour; but the worst of all the signs of its decay and helplessness, is that half-way up, a parasite crystal, smaller, but just as sickly, has rooted itself in the side of the larger one, eating out a cavity round its root, and then growing backwards, or downwards, contrary to the direc-

tion of the main crystal. Yet I cannot trace the least difference in purity of substance between the first most noble stone, and this ignoble and dissolute one. The impurity of the last is in its will, or want of will.

MARY. Oh, if we could but understand the meaning of it all!

L. We can understand all that is good for us. It is just as true for us, as for the crystal, that the nobleness of life depends on its consistency,—clearness of purpose,—quiet and ceaseless energy. All doubt, and repenting, and botching, and retouching, and wondering what it will be best to do next, are vice, as well as misery.

MARY (*much wondering*). But must not one repent when one does wrong, and hesitate when one can't see one's way?

L. You have no business at all to do wrong; nor to get into any way that you cannot see. Your intelligence should always be far in advance of your act. Whenever you do not know what you are about, you are sure to be doing wrong.

KATHLEEN. Oh, dear, but I never know what I am about!

L. Very true, Katie, but it is a great deal to know, if you know that. And you find that you have done wrong afterwards; and perhaps some day you may begin to know, or at least, think, what you are about.

ISABEL. But surely people can't do very wrong if they don't know, can they? I mean, they can't be very naughty. They can be wrong, like Kathleen or me, when we make mistakes; but not wrong in the dreadful way. I can't express what I mean; but there are two sorts of wrong, are there not?

L. Yes, Isabel; but you will find that the great difference is between kind and unkind wrongs, not between meant and unmeant wrong. Very few people really mean to do wrong,—in a deep sense, none. They only don't know what they are about. Cain did not mean to do wrong when he killed Abel.

(ISABEL *draws a deep breath, and opens her eyes very wide.*)

L. No, Isabel; and there are countless Cains among us now, who kill their brothers by the score a day, not only for less provocation than Cain had, but for *no* provocation,—and merely for what they can make of their bones —yet do not think they are doing wrong in the least. Then sometimes you have the business reversed, as over in America these last years, where you have seen Abel resolutely killing Cain, and not thinking he is doing wrong. The great difficulty is always to open people's eyes: to touch their feelings, and break their hearts, is easy; the difficult thing is to break their heads. What does it matter, as long as they remain stupid, whether you change their feelings or not? You cannot be always at their elbow to tell them what is right: and they may just do as wrong as before, or worse; and their best intentions merely make the road smooth for them,—you know where, children. For it is not the place itself that is paved with them, as people say so often. You can't pave the bottomless pit; but you may the road to it.

MAY. Well, but if people do as well as they can see how, surely that is the right for them, isn't it?

L. No, May, not a bit of it; right is right, and wrong is wrong. It is only the fool who does wrong, and says he "did it for the best." And if there's one sort of person in the world that the Bible speaks harder of than another, it is fools. Their particular and chief way of saying "There is no God" is this, of declaring that whatever their "public opinion" may be, is right; and that God's opinion is of no consequence.

MAY. But surely nobody can always know what is right?

L. Yes, you always can, for to-day; and if you do what you see of it to-day, you will see more of it, and more clearly, to-morrow. Here, for instance, you children are at school, and have to learn French, and arithmetic, and music, and several other such things. That is your "right" for the present; the "right" for us, your teachers, is to see that you learn as much as you can, without spoiling your dinner, your sleep, or your play; and

that what you do learn, you learn well. You all know when you learn with a will, and when you dawdle. There's no doubt of conscience about that, I suppose?

VIOLET. No; but if one wants to read an amusing book, instead of learning one's lesson?

L. You don't call that a "question," seriously, Violet? You are then merely deciding whether you will resolutely do wrong or not.

MARY. But, in after life, how many fearful difficulties may arise, however one tries to know or to do what is right!

L. You are much too sensible a girl, Mary, to have felt that, whatever you may have seen. A great many of young ladies' difficulties arise from their falling in love with a wrong person: but they have no business to let themselves fall in love, till they know he is the right one.

DORA. How many thousands ought he to have a year?

L. (*disdaining reply*). There are, of course, certain crises of fortune when one has to take care of oneself; and mind shrewdly what one is about. There is never any real doubt about the path, but you may have to walk very slowly.

MARY. And if one is forced to do a wrong thing by some one who has authority over you?

L. My dear, no one can be forced to do a wrong thing, for the guilt is in the will: but you may any day be forced to do a fatal thing, as you might be forced to take poison; the remarkable law of nature in such cases being, that it is always unfortunate *you* who are poisoned, and not the person who gives you the dose. It is a very strange law, but it *is* a law. Nature merely sees to the carrying out of the normal operation of arsenic. She never troubles herself to ask who gave it you. So also you may be starved to death, morally as well as physically, by other people's faults. You are, on the whole, very good children sitting here to-day:—do you think that your goodness comes all by your own contriving? or that you are gentle and kind because your dispositions are naturally more angelic than those of the poor girls who are playing,

with wild eyes, on the dustheaps in the alleys of our great towns; and who will one day fill their prisons,—or, better, their graves? Heaven only knows where they, and we who have cast them there, shall stand at last. But the main judgment question will be, I suppose, for all of us, "Did you keep a good heart through it?" What you were, others may answer for;—what you tried to be, you must answer for, yourself. Was the heart pure and true—tell us that?

And so we come back to your sorrowful question, Lucilla, which I put aside a little ago. You would be afraid to answer that your heart *was* pure and true, would not you?

LUCILLA. Yes, indeed, sir.

L. Because you have been taught that it is all evil—"only evil continually." Somehow, often as people say that, they never seem, to me, to believe it. Do you really believe it?

LUCILLA. Yes, sir; I hope so.

L. That you have an entirely bad heart?

LUCILLA (*a little uncomfortable at the substitution of the monosyllable for the dissyllable, nevertheless persisting in her orthodoxy*). Yes, sir.

L. Florrie, I am sure you are tired; I never like you to stay when you are tired; but, you know, you must not play with the kitten while we're talking.

FLORRIE. Oh! but I'm not tired; and I'm only nursing her. She'll be asleep in my lap, directly.

L. Stop! that puts me in mind of something I had to show you, about minerals that are like hair. I want a hair out of Tittie's tail.

FLORRIE (*quite rude, in her surprise, even to the point of repeating expressions*). Out of Tittie's tail!

L. Yes; a brown one: Lucilla, you can get at the tip of it nicely, under Florrie's arm; just pull one out for me.

LUCILLA. Oh! but, sir, it will hurt her so!

L. Never mind; she can't scratch you while Florrie is holding her. Now that I think of it, you had better pull out two.

LUCILLA. But then she may scratch Florrie! and it will hurt her so, sir! if you only want brown hairs, wouldn't two of mine do?

L. Would you really rather pull out your own than Tittie's?

LUCILLA. Oh, of course, if mine will do.

L. But that's very wicked, Lucilla!

LUCILLA. Wicked, sir?

L. Yes; if your heart was not so bad, you would much rather pull all the cat's hairs out, than one of your own.

LUCILLA. Oh! but sir, I didn't mean bad, like that.

L. I believe, if the truth were told, Lucilla, you would like to tie a kettle to Tittie's tail, and hunt her round the playground.

LUCILLA. Indeed, I should not, sir.

L. That's not true, Lucilla; you know it cannot be.

LUCILLA. Sir?

L. Certainly it is not;—how can you possibly speak any truth out of such a heart as you have. It is wholly deceitful.

LUCILLA. Oh! no, no; I don't mean that way; I don't mean that it makes me tell lies, quite out.

L. Only that it tells lies within you?

LUCILLA. Yes.

L. Then, outside of it, you know what is true, and say so; and I may trust the outside of your heart; but within, it is all foul and false. Is that the way?

LUCILLA. I suppose so: I don't understand it, quite.

L. There is no occasion for understanding it; but do you feel it? Are you sure that your heart is deceitful above all things, and desperately wicked?

LUCILLA (*much relieved by finding herself among phrases with which she is acquainted*). Yes, sir. I'm sure of that.

L. (*pensively*). I'm sorry for it, Lucilla.

LUCILLA. So am I, indeed.

L. What are you sorry with, Lucilla?

LUCILLA. Sorry with, sir?

L. Yes; I mean, where do you feel sorry? in your feet.

LUCILLA (*laughing a little*). No, sir, of course.

L. In your shoulders, then?

LUCILLA. No, sir.

L. You are sure of that? Because, I fear, sorrow in the shoulders would not be worth much.

LUCILLA. I suppose I feel it in my heart, if I really am sorry.

L. If you really are! Do you mean to say that you are sure you are utterly wicked, and yet do not care?

LUCILLA. No, indeed; I have cried about it often.

L. Well, then, you are sorry in your heart?

LUCILLA. Yes, when the sorrow is worth anything.

L. Even if it be not, it cannot be anywhere else but there. It is not the crystalline lens of your eyes which is sorry, when you cry?

LUCILLA. No, sir, of course.

L. Then, have you two hearts; one of which is wicked, and the other grieved? or is one side of it sorry for the other side?

LUCILLA (*weary of cross-examination, and a little vexed*). Indeed, sir, you know I can't understand it; but you know how it is written—"another law in my members, warring against the law of my mind."

L. Yes, Lucilla, I know how it is written; but I do not see that it will help us to know that, if we neither understand what is written, nor feel it. And you will not get nearer to the meaning of one verse, if, as soon as you are puzzled by it, you escape to another, introducing three new words—"law," "members," and "mind"; not one of which you at present know the meaning of; and respecting which, you probably never will be much wiser; since men like Montesquieu and Locke have spent great part of their lives in endeavouring to explain two of them.

LUCILLA. Oh! please, sir, ask somebody else.

L. If I thought anyone else could answer better than you, Lucilla, I would: but suppose I try, instead, myself, to explain your feelings to you?

LUCILLA. Oh, yes; please do.

L. Mind, I say your "feelings," not your "belief." For I cannot undertake to explain anybody's beliefs. Still I must try a little, first, to explain the belief also, because I want to draw it to some issue. As far as I understand what you say, or any one else, taught as you have been taught, says, on this matter,—you think that there is an external goodness, a whited-sepulchre kind of goodness, which appears beautiful outwardly, but is within full of uncleanness: a deep secret guilt, of which we ourselves are not sensible; and which can only be seen by the Maker of us all. (*Approving murmurs from audience.*)

L. Is it not so with the body as well as the soul?

(*Looked notes of interrogation.*)

L. A skull, for instance, is not a beautiful thing?

(*Grave faces, signifying "Certainly not," and "What next?"*)

L. And if you all could see in each other, with clear eyes, whatever God sees beneath those fair faces of yours, you would not like it?

(*Murmured "No's."*)

L. Nor would it be good for you?

(*Silence.*)

L. The probability being that what God does not allow you to see, He does not wish you to see; nor even to think of?

(*Silence prolonged.*)

L. It would not at all be good for you, for instance, whenever you were washing your faces, and braiding your hair, to be thinking of the shapes of the jawbones, and of the cartilage of the nose, and of the jagged sutures of the scalp?

(*Resolutely whispered No's.*)

L. Still less, to see through a clear glass the daily processes of nourishment and decay?

(*No.*)

L. Still less if instead of merely inferior and preparatory conditions of structure, as in the skeleton,—or inferior offices of structure, as in operations of life and

death,—there were actual disease in the body; ghastly and dreadful. You would try to cure it; but having taken such measures as were necessary, you would not think the cure likely to be promoted by perpetually watching the wounds, or thinking of them. On the contrary, you would be thankful for every moment of forgetfulness: as, in daily health, you must be thankful that your Maker has veiled whatever is fearful in your frame under a sweet and manifest beauty; and has made it your duty, and your only safety, to rejoice in that, both in yourself and in others:—not indeed concealing, or refusing to believe in sickness, if it come; but never dwelling on it.

Now, your wisdom and duty touching soul-sickness are just the same. Ascertain clearly what is wrong with you; and so far as you know any means of mending it, take those means, and have done: when you are examining yourself, never call yourself merely a "sinner," that is very cheap abuse; and utterly useless. You may even get to like it, and be proud of it. But call yourself a liar, a coward, a sluggard, a glutton, or an evil-eyed, jealous wretch, if you indeed find yourself to be in any wise any of these. Take steady means to check yourself in whatever fault you have ascertained, and justly accused yourself of. And as soon as you are in active way of mending, you will be no more inclined to moan over an undefined corruption. For the rest, you will find it less easy to uproot faults, than to choke them by gaining virtues. Do not think of your faults; still less of others' faults: in every person who comes near you, look for what is good and strong: honour that; rejoice in it; and, as you can, try to imitate it: and your faults will drop off, like dead leaves, when their time comes. If, on looking back, your whole life should seem rugged as a palm tree stem; still, never mind, so long as it has been growing; and has its grand green shade of leaves, and weight of honied fruit, at top. And even if you cannot find much good in yourself at last, think that it does not much matter to the universe either what you were, or are; think how many people are noble, if you cannot be; and rejoice in *their*

nobleness. An immense quantity of modern confession of sin, even when honest, is merely a sickly egotism; which will rather gloat over its own evil, than lose the centralisation of its interest in itself.

MARY. But then, if we ought to forget ourselves so much, how did the old Greek proverb, "Know thyself" come to be so highly esteemed?

L. My dear, it is the proverb of proverbs;—Apollo's proverb, and the sun's;—but do you think you can know yourself by looking *into* yourself? Never. You can know what you are, only by looking *out* of yourself. Measure your own powers with those of others; compare your own interests with those of others; try to understand what you appear to them, as well as what they appear to you; and judge of yourselves, in all things, relatively and subordinately; not positively: starting always with a wholesome conviction of the probability that there is nothing particular about you. For instance, some of you perhaps think you can write poetry. Dwell on your own feelings and doings;—and you will soon think yourselves Tenth Muses; but forget your own feelings; and try, instead, to understand a line or two of Chaucer or Dante: and you will soon begin to feel yourselves very foolish girls—which is much like the fact.

So, something which befalls you may seem a great misfortune;—you meditate over its effects on you personally; and begin to think that it is a chastisement, or a warning, or a this or that or the other of profound significance; and that all the angels in heaven have left their business for a little while, that they may watch its effects on your mind. But give up this egotistic indulgence of your fancy; examine a little what misfortunes, greater a thousandfold, are happening, every second, to twenty times worthier persons: and your self-consciousness will change into pity and humility; and you will know yourself, so far as to understand that "there hath nothing taken thee but what is common to man."

Now, Lucilla, these are the practical conclusions which any person of sense would arrive at, supposing the texts

which relate to the inner evil of the heart were as many, and as prominent, as they are often supposed to be by careless readers. But the way in which common people read their Bibles is just like the way that the old monks thought hedgehogs ate grapes. They rolled themselves (it was said), over and over, where the grapes lay on the ground. What fruit stuck to their spines, they carried off, and ate. So your hedgehoggy readers roll themselves over and over their Bibles, and declare that whatever sticks to their own spines is Scripture; and that nothing else is. But you can only get the skins of the texts that way. If you want their juice, you must press them in cluster. Now, the clustered texts about the human heart, insist, as a body, not on any inherent corruption in all hearts, but on the terrific distinction between the bad and the good ones. "A good man, out of the good treasure of his heart, bringeth forth that which is good; and an evil man, out of the evil treasure, bringeth forth that which is evil." "They on the rock are they which, in an honest and good heart, having heard the word, keep it." "Delight thyself in the Lord, and He shall give thee the desires of thine heart." "The wicked have bent their bow, that they may privily shoot at him that is upright in heart." And so on; they are countless, to the same effect. And, for all of us, the question is not at all to ascertain how much or how little corruption there is in human nature; but to ascertain whether, out of all the mass of that nature, we are of the sheep or the goat breed; whether we are people of upright heart, being shot at, or people of crooked heart, shooting. And, of all the texts bearing on the subject, this, which is a quite simple and practical order, is the one you have chiefly to hold in mind. "Keep thy heart with all diligence, for out of it are the issues of life."

LUCILLA. And yet, how inconsistent the texts seem!

L. Nonsense, Lucilla! do you think the universe is bound to look consistent to a girl of fifteen? Look up at your own room window;—you can just see it from where you sit. I'm glad that it is left open, as it ought to be, in

so fine a day. But do you see what a black spot it looks, in the sun-lighted wall?

LUCILLA. Yes, it looks as black as ink.

L. Yet you know it is a very bright room when you are inside of it; quite as bright as there is any occasion for it to be, that its little lady may see to keep it tidy. Well, it is very probable, also, that if you could look into your heart from the sun's point of view, it might appear a very black hole to you indeed: nay, the sun may sometimes think good to tell you that it looks so to Him; but He will come into it, and make it very cheerful for you, for all that, if you don't put the shutters up. And the one question for *you*, remember, is not "dark or light?" but "tidy or untidy?" Look well to your sweeping and garnishing; and be sure it is only the banished spirit, or some of the seven wickeder ones at his back, who will still whisper to you that it is all black.

LECTURE VI

CRYSTAL QUARRELS

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CRYSTAL QUARRELS

Full conclave, in Schoolroom. There has been a game at crystallisation in the morning, of which various account has to be rendered. In particular, everybody has to explain why they were always where they were not intended to be.

L. (*having received and considered the report*). You have got on pretty well, children: but you know these were easy figures you have been trying. Wait till I have drawn you out the plans of some crystals of snow!

MARY. I don't think those will be the most difficult:—they are so beautiful that we shall remember our places better; and then they are all regular, and in stars: it is those twisty oblique ones we are afraid of.

L. Read Carlyle's account of the battle of Leuthen, and learn Friedrich's "oblique order." You will "get it done for once, I think, provided you *can* march as a pair of compasses would." But remember, when you can construct the most difficult single figures, you have only learned half the game—nothing so much as the half, indeed, as the crystals themselves play it.

MARY. Indeed; what else is there?

L. It is seldom that any mineral crystallises alone. Usually two or three, under quite different crystalline laws, form together. They do this absolutely without flaw or fault, when they are in fine temper: and observe what this signifies. It signifies that the two, or more, minerals of different natures agree, somehow, between themselves, how much space each will want;—agree which of them

shall give way to the other at their junction; or in what measure each will accommodate itself to the other's shape! And then each takes its permitted shape, and allotted share of space; yielding, or being yielded to, as it builds, till each crystal has fitted itself perfectly and gracefully to its differently-natured neighbour. So that, in order to practise this, in even the simplest terms, you must divide into two parties, wearing different colours; each must choose a different figure to construct; and you must form one of these figures through the other, both going on at the same time.

MARY. I think *we* may, perhaps, manage it; but I cannot at all understand how the crystals do. It seems to imply so much preconcerting of plan, and so much giving way to each other, as if they really were living.

L. Yes, it implies both concurrence and compromise, regulating all wilfulness of design: and, more curiously still, the crystals do *not* always give way to each other. They show exactly the same varieties of temper that human creatures might. Sometimes they yield the required place with perfect grace and courtesy; forming fantastic, but exquisitely finished, groups: and sometimes they will not yield at all; but fight furiously for their places, losing all shape and honour, and even their own likeness, in the contest.

MARY. But is not that wholly wonderful? How is it that one never sees it spoken of in books?

L. The scientific men are all busy in determining the constant laws under which the struggle takes place; these indefinite humours of the elements are of no interest to them. And unscientific people rarely give themselves the trouble of thinking at all, when they look at stones. Not that it is of much use to think; the more one thinks, the more one is puzzled.

MARY. Surely it is more wonderful than anything in botany?

L. Everything has its own wonders; but, given the nature of the plant, it is easier to understand what a flower will do, and why it does it, than, given anything

we as yet know of stone-nature, to understand what a crystal will do, and why it does it. You at once admit a kind of volition and choice, in the flower; but we are not accustomed to attribute anything of the kind to the crystal. Yet there is, in reality, more likeness to some conditions of human feeling among stones than among plants. There is a far greater difference between kindly-tempered and ill-tempered crystals of the same mineral, than between any two specimens of the same flower: and the friendships and wars of crystals depend more definitely and curiously on their varieties of disposition, than any associations of flowers. Here, for instance, is a good garnet, living with good mica; one rich red, and the other silver white: the mica leaves exactly room enough for the garnet to crystallise comfortably in; and the garnet lives happily in its little white house; fitted to it, like a pholas in its cell. But here are wicked garnets living with wicked mica. See what ruin they make of each other! You cannot tell which is which; the garnets look like dull red stains on the crumbling stone. By the way, I never could understand, if St. Gothard is a real saint, why he can't keep his garnets in better order. These are all under his care; but I suppose there are too many of them for him to look after. The streets of Airolo are paved with them.

MAY. Paved with garnets?

L. With mica-slate and garnets; I broke this bit out of a paving stone. Now garnets and mica are natural friends, and generally fond of each other; but you see how they quarrel when they are ill brought up. So it is always. Good crystals are friendly with almost all other good crystals, however little they chance to see of each other, or however opposite their habits may be; while wicked crystals quarrel with one another, though they may be exactly alike in habits, and see each other continually. And of course the wicked crystals quarrel with the good ones.

ISABEL. Then do the good ones get angry?

L. No, never: they attend to their own work and life; and live it as well as they can, though they are always the

sufferers. Here, for instance, is a rock-crystal of the purest race and finest temper, who was born, unhappily for him, in a bad neighbourhood, near Beaufort in Savoy; and he has had to fight with vile calcareous mud all his life. See here, when he was but a child, it came down on him, and nearly buried him; a weaker crystal would have died in despair; but he only gathered himself together, like Hercules against the serpents, and threw a layer of crystal over the clay; conquered it,—imprisoned it,—and lived on. Then, when he was a little older, came more clay; and poured itself upon him here, at the side; and he has laid crystal over that, and lived on, in his purity. Then the clay came on at his angles, and tried to cover them, and round them away; but upon that he threw out buttress-crystals at his angles, all as true to his own central line as chapels round a cathedral apse; and clustered them round the clay; and conquered it again. At last the clay came on at his summit, and tried to blunt his summit; but he could not endure that for an instant; and left his flanks all rough, but pure; and fought the clay at his crest, and built crest over crest, and peak over peak, till the clay surrendered at last: and here is his summit, smooth and pure, terminating a pyramid of alternate clay and crystal, half a foot high!

LILY. Oh, how nice of him! What a dear, brave crystal! But I can't bear to see his flanks all broken, and the clay within them.

L. Yes; it was an evil chance for him, the being born to such contention; there are some enemies so base that even to hold them captive is a kind of dishonour. But look, here has been quite a different kind of struggle: the adverse power has been more orderly, and has fought the pure crystal in ranks as firm as its own. This is not mere rage and impediment of crowded evil: here is a disciplined hostility; army against army.

LILY. Oh, but this is much more beautiful!

L. Yes, for both the elements have true virtue in them; it is a pity they are at war, but they war grandly.

MARY. But is this the same clay as in the other crystal?

L. I used the word clay for shortness. In both, the enemy is really limestone; but in the first, disordered, and mixed with true clay; while, here, it is nearly pure, and crystallises into its own primitive form, the oblique six-sided one, which you know: and out of these it makes regiments; and then squares of the regiments, and so charges the rock crystal, literally in square against column.

ISABEL. Please, please, let me see. And what does the rock crystal do?

L. The rock crystal seems able to do nothing. The calcite cuts it through at every charge. Look here,—and here! The loveliest crystal in the whole group is hewn fairly into two pieces.

ISABEL. Oh, dear; but is the calcite harder than the crystal then?

L. No, softer. Very much softer.

MARY. But then, how can it possibly cut the crystal?

L. It did not really cut it, though it passes through it. The two were formed together, as I told you; but no one knows how. Still, it is strange that this hard quartz has in all cases a good-natured way with it, of yielding to everything else. All sorts of soft things make nests for themselves in it; and it never makes a nest for itself in anything. It has all the rough outside work; and every sort of cowardly and weak mineral can shelter itself within it. Look; these are hexagonal plates of mica; if they were outside of this crystal they would break, like burnt paper; but they are inside of it,—nothing can hurt them,—the crystal has taken them into its very heart, keeping all their delicate edges as sharp as if they were under water, instead of bathed in rock. Here is a piece of branched silver: you can bend it with a touch of your finger, but the stamp of its every fibre is on the rock in which it lay, as if the quartz had been as soft as wood.

LILY. Oh, the good, good quartz! But does it never get inside of anything?

L. As it is a little Irish girl who asks, I may perhaps answer, without being laughed at, that it gets inside of

itself sometimes. But I don't remember seeing quartz make a nest for itself in anything else.

ISABEL. Please, there was something I heard you talking about, last term, with Miss Mary. I was at my lessons, but I heard something about nests; and I thought it was bird's nests; and I couldn't help listening; and then, I remember, it was about "nests of quartz in granite." I remember, because I was so disappointed!

L. Yes, mousie, you remember quite rightly; but I can't tell you about those nests to-day, nor perhaps to-morrow: but there's no contradiction between my saying then, and now; I will show you that there is not, some day. Will you trust me meanwhile?

ISABEL. Won't I!

L. Well then, look, lastly, at this piece of courtesy in quartz; it is on a small scale, but wonderfully pretty. Here is nobly born quartz living with a green mineral, called epidote; and they are immense friends. Now, you see, a comparatively large and strong quartz-crystal, and a very weak and slender little one of epidote, have begun to grow, close by each other, and sloping unluckily towards each other, so that at last they meet. They cannot go on growing together; the quartz crystal is five times as thick, and more than twenty times as strong,[1] as the epidote; but he stops at once, just in the very crowning moment of his life, when he is building his own summit! He lets the pale little film of epidote grow right past him; stopping his own summit for it; and he never himself grows any more.

LILY (*after some silence of wonder*). But is the quartz *never* wicked then?

L. Yes, but the wickedest quartz seems good-natured, compared to other things. Here are two very characteristic examples; one is good quartz, living with good pearlspar, and the other, wicked quartz, living with wicked pearlspar. In both, the quartz yields to the soft

[1] Quartz is not much harder than epidote; the strength is only supposed to be in some proportion to the squares of the diameters.

carbonate of iron: but, in the first piece, the iron takes only what it needs of room; and is inserted into the planes of the rock crystal with such precision, that you must break it away before you can tell whether it really penetrates the quartz or not; while the crystals of iron are perfectly formed, and have a lovely bloom on their surface besides. But here, when the two minerals quarrel, the unhappy quartz has all its surface jagged and torn to pieces; and there is not a single iron crystal whose shape you can completely trace. But the quartz has the worst of it, in both instances.

VIOLET. Might we look at that piece of broken quartz again, with the weak little film across it? it seems such a strange lovely thing, like the self-sacrifice of a human being.

L. The self-sacrifice of a human being is not a lovely thing, Violet. It is often a necessary and noble thing; but no form nor degree of suicide can be ever lovely.

VIOLET. But self-sacrifice is not suicide!

L. What is it then?

VIOLET. Giving up one's self for another.

L. Well; and what do you mean by "giving up one's self"?

VIOLET. Giving up one's tastes, one's feelings, one's time, one's happiness, and so on, to make others happy.

L. I hope you will never marry anybody, Violet, who expects you to make him happy in that way.

VIOLET (*hesitating*). In what way?

L. By giving up your tastes, and sacrificing your feelings, and happiness.

VIOLET. No, no, I don't mean that; but you know, for other people, one must.

L. For people who don't love you, and whom you know nothing about? Be it so; but how does this "giving up" differ from suicide then?

VIOLET. Why, giving up one's pleasures is not killing one's self?

L. Giving up wrong pleasure is not; neither is it self-sacrifice, but self-culture. But giving up right pleasure is. If you surrender the pleasure of walking, your foot

will wither; you may as well cut it off: if you surrender the pleasure of seeing, your eyes will soon be unable to bear the light; you may as well pluck them out. And to maim yourself is partly to kill yourself. Do but go on maiming, and you will soon slay.

VIOLET. But why do you make me think of that verse then, about the foot and the eye?

L. You are indeed commanded to cut off and to pluck out, if foot or eye offend you; but why *should* they offend you?

VIOLET. I don't know; I never quite understood that.

L. Yet it is a sharp order; one needing to be well understood if it is to be well obeyed! When Helen sprained her ancle the other day, you saw how strongly it had to be bandaged; that is to say, prevented from all work, to recover it. But the bandage was not "lovely."

VIOLET. No, indeed.

L. And if her foot had been crushed, or diseased, or snake-bitten, instead of sprained, it might have been needful to cut it off. But the amputation would not have been "lovely."

VIOLET. No.

L. Well, if eye and foot are dead already, and betray you;—if the light that is in you be darkness, and your feet run into mischief, or are taken in the snare,—it is indeed time to pluck out, and cut off, I think: but, so crippled, you can never be what you might have been otherwise. You enter into life, at best, halt or maimed; and the sacrifice is not beautiful, though necessary.

VIOLET (*after a pause*). But when one sacrifices one's self for others?

L. Why not rather others for you?

VIOLET. Oh! but I couldn't bear that.

L. Then why should they bear it?

DORA (*bursting in, indignant*). And Thermopylæ, and Protesilaus, and Marcus Curtius, and Arnold de Winkelried and Iphigenia, and Jephthah's daughter?

L. (*sustaining the indignation unmoved*). And the Samaritan woman's son?

DORA. Which Samaritan woman's?

L. Read 2 Kings vi. 29.

DORA (*obeys*). How horrid! As if we meant anything like that!

L. You don't seem to me to know in the least what you do mean, children. What practical difference is there between "that," and what you are talking about? The Samaritan children had no voice of their own in the business, it is true; but neither had Iphigenia: the Greek girl was certainly neither boiled, nor eaten; but that only makes a difference in the dramatic effect; not in the principle.

DORA (*biting her lip*). Well, then, tell us what we ought to mean. As if you didn't teach it all to us, and mean it yourself, at this moment, more than we do, if you wouldn't be tiresome!

L. I mean, and always have meant, simply this, Dora;—that the will of God respecting us is that we shall live by each other's happiness, and life; not by each other's misery, or death. I made you read that verse which so shocked you just now, because the relations of parent and child are typical of all beautiful human help. A child may have to die for its parents; but the purpose of Heaven is that it shall rather live for them;—that, not by its sacrifice, but by its strength, its joy, its force of being, it shall be to them renewal of strength; and as the arrow in the hand of the giant. So it is in all other right relations. Men help each other by their joy, not by their sorrow. They are not intended to slay themselves for each other, but to strengthen themselves for each other. And among the many apparently beautiful things which turn, through mistaken use, to utter evil, I am not sure but that the thoughtlessly meek and self-sacrificing spirit of good men must be named as one of the fatallest. They have so often been taught that there is a virtue in mere suffering, as such; and foolishly to hope that good may be brought by Heaven out of all on which Heaven itself has set the stamp of evil, that we may avoid it,—that they accept pain and defeat as if these were their appointed portion; never under-

standing that there defeat is not the less to be mourned because it is more fatal to their enemies than to them. The one thing that a good man has to do, and to see done, is justice; he is neither to slay himself nor others causelessly: so far from denying hismelf, since he is pleased by good, he is to do his utmost to get his pleasure accomplished. And I only wish there were strength, fidelity, and sense enough, among the good Englishmen of this day, to render it possible for them to band together in a vowed brotherhood, to enforce, by strength of heart and hand, the doing of human justice among all who came within their sphere. And finally, for your own teaching, observe, although there may be need for much self-sacrifice and self-denial in the correction of faults of character, the moment the character is formed, the self-denial ceases. Nothing is really well done, which it costs you pain to do.

VIOLET. But surely, sir, you are always pleased with us when we try to please others, and not ourselves?

L. My dear child, in the daily course and discipline of right life, we must continually and reciprocally submit and surrender in all kind and courteous and affectionate ways: and these submissions and ministries to each other, of which you all know (none better), the practice and the preciousness, are as good for the yielder as the receiver: they strengthen and perfect as much as they soften and refine. But the real sacrifice of all our strength, or life, or happiness to others (though it may be needed, and though all brave creatures hold their lives in their hand, to be given, when such need comes, as frankly as a soldier gives his life in battle), is yet always a mournful and momentary necessity; not the fulfilment of the continuous law of being. Self-sacrifice which is sought after, and triumphed in, is usually foolish; and calamitous in its issue: and by the sentimental proclamation and pursuit of it, good people have not only made most of their own lives useless, but the whole framework of their religion so hollow, that at this moment, while the English nation, with its lips, pretends to teach every man to "love his neighbour as himself," with its hands and feet it clutches

and tramples like a wild beast; and practically lives, every soul of it that can, on other people's labour. Briefly, the constant duty of every man to his fellows is to ascertain his own powers and special gifts; and to strengthen them for the help of others. Do you think Titian would have helped the world better by denying himself, and not painting; or Casella by denying himself, and not singing? The real virtue is to be ready to sing the moment people ask us; as he was, even in purgatory. The very word "virtue" means not "conduct" but "strength," vital energy in the heart. Were not you reading about that group of words beginning with V,—vital, virtuous, vigorous, and so on,—in Max Müller, the other day, Sibyl? Can't you tell the others about it?

SIBYL. No, I can't; will you tell us, please?

L. Not now, it is too late. Come to me some idle time to-morrow, and I'll tell you about it, if all's well. But the gist of it is, children, that you should at least know two Latin words; recollect that "mors" means death and delaying; and "vita" means life, and growing: and try always, not to mortify yourselves, but to vivify yourselves.

VIOLET. But, then, are we not to mortify our earthly affections? and surely we are to sacrifice ourselves, at least in God's service, if not in man's?

L. Really, Violet, we are getting too serious. I've given you enough ethics for one talk, I think! Do let us have a little play. Lily, what were you so busy about, at the ant hill in the wood, this morning?

LILY. Oh, it was the ants who were busy, not I; I was only trying to help them a little.

L. And they wouldn't be helped, I suppose?

LILY. No, indeed. I can't think why ants are always so tiresome, when one tries to help them! They were carrying bits of stick, as fast as they could, through a piece of grass; and pulling and pushing, *so* hard; and tumbling over and over,—it made one quite pity them; so I took some of the bits of stick, and carried them forward a little, where I thought they wanted to put them;

but instead of being pleased, they left them directly, and ran about looking quite angry and frightened; and at last ever so many of them got up my sleeves, and bit me all over, and I had to come away.

L. I couldn't think what you were about. I saw your French grammar lying on the grass behind you, and thought perhaps you had gone to ask the ants to hear you a French verb.

ISABEL. Ah! but you didn't, though!

L. Why not, Isabel? I knew, well enough, Lily couldn't learn that verb by herself.

ISABEL. No; but the ants couldn't help her.

L. Are you sure the ants could not have helped you, Lily?

LILY (*thinking*). I ought to have learned something from them, perhaps.

L. But none of them left their sticks to help you through the irregular verb?

LILY. No, indeed. (*Laughing, with some others.*)

L. What are you laughing at, children? I cannot see why the ants should not have left their tasks to help Lily in her's,—since here is Violet thinking she ought to leave *her* tasks, to help God in His. Perhaps, however, she takes Lily's more modest view, and thinks only that "He ought to learn something from her."

(*Tears in* VIOLET'S *eyes.*)

DORA (*scarlet*). It's too bad—it's a shame:—poor Violet!

L. My dear children, there's no reason why one should be so red, and the other so pale, merely because you are made for a moment to feel the absurdity of a phrase which you have been taught to use, in common with half the religious world. There is but one way in which man can ever help God—that is, by letting God help him: and there is no way in which His name is more guiltily taken in vain, than by calling the abandonment of our own work, the performance of His.

God is a kind Father. He sets us all in the places where He wishes us to be employed; and that employ-

ment is truly "our Father's business." He chooses work for every creature which will be delightful to them, if they do it simply and humbly. He gives us always strength enough, and sense enough, for what He wants us to do; if we either tire ourselves or puzzle ourselves, it is our own fault. And we may always be sure, whatever we are doing, that we cannot be pleasing Him, if we are not happy ourselves. Now, away with you, children; and be as happy as you can. And when you cannot, at least don't plume yourselves upon pouting.

LECTURE VII

HOME VIRTUES

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By the fireside, in the Drawing-room. Evening.

DORA. Now, the curtains are drawn, and the fire's bright, and here's your armchair—and you're to tell us all about what you promised.

L. All about what?

DORA. All about virtue.

KATHLEEN. Yes, and about the words that begin with V.

L. I heard you singing about a word that begins with V, in the playground, this morning, Miss Katie.

KATHLEEN. Me singing!

MAY. Oh tell us—tell us.

L. "Vilikens and his——"

KATHLEEN (*stopping his mouth*). Oh! please don't. Where were you?

ISABEL. I'm sure I wish I had known where he was! We lost him among the rhododendrons, and I don't know where he got to, oh, you naughty—naughty—(*climbs on his knee*).

DORA. Now, Isabel, we really want to talk.

L. *I* don't.

DORA. Oh, but you must. You promised, you know.

L. Yes, if all was well; but all's ill. I'm tired, and cross; and I won't.

DORA. You're not a bit tired, and you're not crosser than two sticks; and we'll make you talk, if you were

crosser than six. Come here, Egypt; and get on the other side of him.

(EGYPT *takes up a commanding position near the hearth brush.*)

DORA (*reviewing her forces*). Now, Lily, come and sit on the rug in front.

(LILY *does as she is bid.*)

L. (*seeing he has no chance against the odds*). Well, well; but I'm really tired. Go and dance a little first; and let me think.

DORA. No; you mustn't think. You will be wanting to make us think next; that will be tiresome.

L. Well, go and dance first, to get quit of thinking: and then I'll talk as long as you like.

DORA. Oh, but we can't dance to-night. There isn't time; and we want to hear about virtue.

L. Let me see a little of it first. Dancing is the first of girls' virtues.

EGYPT. Indeed! And the second?

L. Dressing.

EGYPT. Now, you needn't say that! I mended that tear the first thing before breakfast this morning.

L. I cannot otherwise express the ethical principle, Egypt; whether you have mended your gown or not.

DORA. Now don't be tiresome. We really must hear about virtue, please; seriously.

L. Well. I'm telling you about it, as fast as I can.

DORA. What! the first of girls' virtues is dancing?

L. More accurately, it is wishing to dance, and not wishing to tease, nor to hear about virtue.

DORA (*to* EGYPT). Isn't he cross?

EGYPT. How many balls must we go to in the season, to be perfectly virtuous?

L. As many as you can without losing your colour. But I did not say you should wish to go to balls. I said you should be always wanting to dance.

EGYPT. So we do; but everybody says it is very wrong.

L. Why, Egypt, I thought—

" There was a lady once,
That would not be a queen,—that would she not,
For all the mud in Egypt."

You were complaining the other day of having to go out a great deal oftener than you liked.

EGYPT. Yes, so I was; but then, it isn't to dance. There's no room to dance: it's—(*Pausing to consider what it is for*).

L. It is only to be seen, I suppose. Well, there's no harm in that. Girls ought to like to be seen.

DORA (*her eyes flashing*). Now, you don't mean that; and you're too provoking; and we won't dance again, for a month.

L. It will answer every purpose of revenge, Dora, if you only banish me to the library; and dance by yourselves; but I don't think Jessie and Lily will agree to that. You like me to see you dancing, don't you, Lily?

LILY. Yes, certainly,—when we do it rightly.

L. And besides, Miss Dora, if young ladies really do not want to be seen, they should take care not to let their eyes flash when they dislike what people say: and, more than that, it is all nonsense from beginning to end, about not wanting to be seen. I don't know any more tiresome flower in the borders than your especially " modest " snowdrop; which one always has to stoop down and take all sorts of tiresome trouble with, and nearly break its poor little head off, before you can see it; and then, half of it is not worth seeing. Girls should be like daisies; nice and white, with an edge of red, if you look close; making the ground bright wherever they are; knowing simply and quietly that they do it, and are meant to do it, and that it would be very wrong if they didn't do it. Not want to be seen, indeed! How long were you in doing your back hair, this afternoon, Jessie?

(JESSIE *not immediately answering,* DORA *comes to her assistance.*)

DORA. Not above three-quarters of an hour, I think, Jess?

JESSIE (*putting her finger up*). Now, Dorothy, *you* needn't talk, you know!

L. I know she needn't, Jessie; I shall ask her about those dark plaits presently. (DORA *looks round to see if there is any way open for retreat.*) But never mind; it was worth the time, whatever it was; and nobody will ever mistake that golden wreath for a chignon: but if you don't want it to be seen, you had better wear a cap.

JESSIE. Ah, now, are you really going to do nothing but play? And we all have been thinking, and thinking, all day; and hoping you would tell us things; and now—!

L. And now I am telling you things, and true things, and things good for you; and you won't believe me. You might as well have let me go to sleep at once, as I wanted to. (*Endeavours again to make himself comfortable.*)

ISABEL. Oh, no, no, you sha'n't go to sleep, you naughty!—Kathleen, come here.

L. (*knowing what he has to expect if* KATHLEEN *comes*). Get away, Isabel, you're too heavy. (*Sitting up.*) What have I been saying?

DORA. I do believe he has been asleep all the time! You never heard anything like the things you've been saying.

L. Perhaps not. If you have heard them, and anything like them, it is all I want.

EGYPT. Yes, but we don't understand, and you know we don't; and we want to.

L. What did I say first?

DORA. That the first virtue of girls was wanting to go to balls.

L. I said nothing of the kind.

JESSIE. "Always wanting to dance," you said.

L. Yes, and that's true. Their first virtue is to be intensely happy;—so happy that they don't know what to do with themselves for happiness,—and dance, instead of walking. Don't you recollect "Louisa,"

> "No fountain from a rocky cave
> E'er tripped with foot so free;
> She seemed as happy as a wave
> That dances on the sea."

A girl is always like that, when everything's right with her.

VIOLET. But, surely, one must be sad sometimes?

L. Yes, Violet; and dull sometimes, and stupid sometimes, and cross sometimes. What must be, must; but it is always either our own fault, or somebody else's. The last and worst thing that can be said of a nation is, that it has made its young girls sad, and weary.

MAY. But I am sure I have heard a great many good people speak against dancing?

L. Yes, May; but it does not follow they were wise as well as good. I suppose they think Jeremiah liked better to have to write Lamentations for his people, than to have to write that promise for them, which everybody seems to hurry past, that they may get on quickly to the verse about Rachel weeping for her children; though the verse they pass is the counter blessing to that one:

"Then shall the virgin rejoice in the dance; and both young men and old together; and I will turn their mourning into joy."

(*The children get very serious, but look at each other, as if pleased.*)

MARY. They understand now: but, do you know what you said next?

L. Yes; I was not more than half asleep. I said their second virtue was dressing.

MARY. Well! what did you mean by that?

L. What do *you* mean by dressing?

MARY. Wearing fine clothes.

L. Ah! there's the mistake. *I* mean wearing plain ones.

MARY. Yes, I daresay! but that's not what girls understand by dressing, you know.

L. I can't help that. If they understand by dressing, buying dresses, perhaps they also understand by drawing, buying pictures. But when I hear them say they can draw, I understand that they can make a drawing; and when I hear them say they can dress, I understand that they can make a dress; and—which is quite as difficult —wear one.

DORA. I'm not sure about the making; for the wearing, we can all wear them—out, before anybody expects it.

EGYPT (*aside, to* L., *piteously*). Indeed I have mended that torn flounce quite neatly; look if I haven't!

L. (*aside, to* EGYPT). All right; don't be afraid. (*Aloud, to* DORA.) Yes, doubtless; but you know that is only a slow way of *un*dressing.

DORA. Then, we are all to learn dress-making, are we?

L. Yes; and always to dress yourselves beautifully—not finely, unless on occasion; but then very finely and beautfully too. Also, you are to dress as many other people as you can; and to teach them how to dress, if they don't know; and to consider every ill-dressed woman or child whom you see anywhere, as a personal disgrace; and to get at them, somehow, until everybody is as beautifully dressed as birds.

(*Silence; the children drawing their breaths hard, as if they had come from under a shower bath.*)

L. (*seeing objections begin to express themselves in the eyes*). Now you needn't say you can't; for you can: and it's what you were meant to do, always; and to dress your houses, and your gardens, too; and to do very little else, I believe, except singing; and dancing, as we said, of course: and—one thing more.

DORA. Our third and last virtue, I suppose?

L. Yes; on Violet's system of triplicities.

DORA. Well, we are prepared for anything now. What is it?

L. Cooking.

DORA. Cardinal, indeed! If only Beatrice were here with her seven handmaids, that she might see what a fine eighth we had found for her!

MARY. And the interpretation? What does "cooking" mean?

L. It means the knowledge of Medea, and of Circe, and of Calypso, and of Helen, and of Rebekah, and of the Queen of Sheba. It means the knowledge of all herbs, and fruits, and balms, and spices; and of all that is healing and sweet in fields and groves, and savoury in meats;

it means carefulness, and inventiveness, and watchfulness, and willingness, and readiness of appliance; it means the economy of your great-grandmothers, and the science of modern chemists; it means much tasting, and no wasting; it means English thoroughness, and French art, and Arabian hospitality; and it means, in fine, that you are to be perfectly and always, "ladies"—"loaf-givers;" and, as you are to see, imperatively, that everybody has something pretty to put on,—so you are to see, yet more imperatively, that everybody has something nice to eat.

(*Another pause, and long drawn breath.*)

DORA (*slowly recovering herself*) *to* EGYPT. We had better have let him go to sleep, I think, after all!

L. You had better let the younger ones go to sleep, now: for I haven't half done.

ISABEL (*panic-struck*). Oh! please, please! just one quarter of an hour.

L. No, Isabel; I cannot say what I've got to say, in a quarter of an hour; and it is too hard for you, besides:—you would be lying awake, and trying to make it out, half the night. That will never do.

ISABEL. Oh, please!

L. It would please me exceedingly, mousie: but there are times when we must both be displeased; more's the pity. Lily may stay for half an hour, if she likes.

LILY. I can't; because Isey never goes to sleep, if she is waiting for me to come.

ISABEL. Oh, yes, Lily; I'll go to sleep to-night, I will, indeed.

LILY. Yes, it's very likely, Isey, with those fine round eyes! (*To* L.) You'll tell me something of what you've been saying, to-morrow, won't you?

L. No, I won't, Lily. You must choose. It's only in Miss Edgeworth's novels that one can do right, and have one's cake and sugar afterwards, as well; (not that I consider the dilemma, to-night, so grave).

(LILY, *sighing, takes* ISABEL's *hand.*)

Yes, Lily dear, it will be better, in the outcome of it, so,

than if you were to hear all the talks that ever were talked, and all the stories that ever were told. Good night.

(*The door leading to the condemned cells of the Dormitory closes on* LILY, ISABEL, FLORRIE, *and other diminutive and submissive victims.*)

JESSIE (*after a pause*). Why, I thought you were so fond of Miss Edgeworth!

L. So I am; and so you ought all to be. I can read her over and over again, without ever tiring: there's no one whose every page is so full, and so delightful; no one who brings you into the company of pleasanter or wiser people; no one who tells you more truly how to do right. And it is very nice, in the midst of a wild world, to have the very ideal of poetical justice done always to one's hand:—to have everybody found out, who tells lies; and everybody decorated with a red riband, who doesn't; and to see the good Laura, who gave away her half sovereign, receiving a grand ovation from an entire dinner party disturbed for the purpose; and poor, dear, little Rosamond, who chooses purple jars instead of new shoes, left at last without either her shoes or her bottle. But it isn't life: and, in the way children might easily understand it, it isn't morals.

JESSIE. How do you mean we might understand it?

L. You might think Miss Edgeworth meant that the right was to be done mainly because one was always rewarded for doing it. It is an injustice to her to say that: her heroines always do right simply for its own sake, as they should; and her examples of conduct and motive are wholly admirable. But her representation of events is false and misleading. Her good characters never are brought into the deadly trial of goodness,—the doing right, and suffering for it, quite finally. And that is life, as God arranges it. "Taking up one's cross" does not at all mean having ovations at dinner parties, and being put over everybody else's head.

DORA. But what *does* it mean then? That is just what we couldn't understand, when you were telling us about not sacrificing ourselves, yesterday.

L. My dear, it means simply that you are to go the road which you see to be the straight one; carrying whatever you find is given you to carry, as well and stoutly as you can; without making faces, or calling people to come and look at you. Above all, you are neither to load, nor unload, yourself; nor cut your cross to your own liking. Some people think it would be better for them to have it large; and many, that they could carry it much faster if it were small; and even those who like it largest are usually very particular about its being ornamental, and made of the best ebony. But all that you have really to do is to keep your back as straight as you can; and not think about what is upon it—above all, not to boast of what is upon it. The real and essential meaning of "virtue" is in that straightness of back. Yes; you may laugh, children, but it is. You know I was to tell you about the words that began with V. Sibyl, what does "virtue" mean, literally?

SIBYL. Does it mean courage?

L. Yes; but a particular kind of courage. It means courage of the nerve; vital courage. That first syllable of it, if you look in Max Müller, you will find really means "nerve," and from it come "vis," and "vir," and "virgin" (through vireo), and the connected word "virga"—"a rod;"—the green rod, or springing bough of a tree, being the type of perfect human strength, both in the use of it in the Mosaic story, when it becomes a serpent, or strikes the rock; or when Aaron's bears its almonds; and in the metaphorical expressions, the "Rod out of the stem of Jesse," and the "Man whose name is the Branch," and so on. And the essential idea of real virtue is that of a vital human strength, which instinctively, constantly, and without motive, does what is right. You must train men to this by habit, as you would the branch of a tree; and give them instincts and manners (or morals) of purity, justice, kindness, and courage. Once rightly trained, they act as they should, irrespectively of all motive, of fear, or of reward. It is the blackest sign of putrescence in a national religion, when men speak as if it were the

only safeguard of conduct; and assume that, but for the fear of being burned, or for the hope of being rewarded, everybody would pass their lives in lying, stealing, and murdering. I think quite one of the notablest historical events of this century (perhaps the very notablest), was that council of clergymen, horror-struck at the idea of any diminution in our dread of hell, at which the last of English clergymen whom one would have expected to see in such a function, rose as the devil's advocate; to tell us how impossible it was we could get on without him.

VIOLET (*after a pause*). But, surely, if people weren't afraid—(*hesitates again*).

L. They should be afraid of doing wrong, and of that only, my dear. Otherwise, if they only don't do wrong for fear of being punished, they *have* done wrong in their hearts, already.

VIOLET. Well, but surely, at least one ought to be afraid of displeasing God; and one's desire to please Him should be one's first motive?

L. He never would be pleased with us, if it were, my dear. When a father sends his son out into the world—suppose as an apprentice—fancy the boy's coming home at night, and saying, "Father, I could have robbed the till to-day; but I didn't, because I thought you wouldn't like it." Do you think the father would be particularly pleased?

(VIOLET *is silent.*)

He would answer, would he not, if he were wise and good, "My boy, though you had no father, you must not rob tills?" And nothing is ever done so as really to please our Great Father, unless we would also have done it, though we had had no Father to know of it.

VIOLET (*after long pause*). But, then, what continual threatenings, and promises of reward there are!

L. And how vain both! with the Jews, and with all of us. But the fact is, that the threat and promise are simply statements of the Divine law, and of its consequences. The fact is truly told you,—make what use you may of it: and as collateral warning, or encouragement,

or comfort, the knowledge of future consequences may often be helpful to us; but helpful chiefly to the better state when we can act without reference to them. And there's no measuring the poisoned influence of that notion of future reward on the mind of Christian Europe, in the early ages. Half the monastic system rose out of that, acting on the occult pride and ambition of good people (as the other half of it came of their follies and misfortunes). There is always a considerable quantity of pride, to begin with, in what is called "giving one's self" to God. As if one had ever belonged to anybody else!

DORA. But, surely, great good has come out of the monastic system—our books,—our sciences—all saved by the monks?

L. Saved from what, my dear? From the abyss of misery and ruin which that false Christianity allowed the whole active world to live in. When it had become the principal amusement, and the most admired art, of Christian men, to cut one another's throats, and burn one another's towns; of course the few feeble or reasonable persons left, who desired quiet, safety, and kind fellowship, got into cloisters; and the gentlest, thoughtfullest, noblest men and women shut themselves up, precisely where they could be of least use. They are very fine things, for us painters, now,—the towers and white arches upon the tops of the rocks; always in places where it takes a day's climbing to get at them: but the intense tragi-comedy of the thing, when one thinks of it, is unspeakable. All the good people of the world getting themselves hung up out of the way of mischief, like Bailie Nicol Jarvie;—poor little lambs, as it were, dangling there for the sign of the Golden Fleece; or like Socrates in his basket in the "Clouds"! (I must read you that bit of Aristophanes again, by the way). And believe me, children, I am no warped witness, as far as regards monasteries; or if I am, it is in their favour. I have always had a strong leaning that way; and have pensively shivered with Augustines at St. Bernard; and happily made hay with Franciscans at Fesolé; and sat silent with Carthusians in their little gardens, south of

Florence; and mourned through many a day-dream, at Melrose and Bolton. But the wonder is always to me, not how much, but how little, the monks have, on the whole, done, with all that leisure, and all that good-will! What nonsense monks characteristically wrote;—what little progress they made in the sciences to which they devoted themselves as a duty,—medicine especially;—and, last and worst, what depths of degradation they can sometimes see one another, and the population round them, sink into; without either doubting their system, or reforming it!

(*Seeing questions rising to lips*). Hold your little tongues, children; it's very late, and you'll make me forget what I've to say. Fancy yourselves in pews, for five minutes. There's one point of possible good in the conventual system, which is always attractive to young girls; and the idea is a very dangerous one;—the notion of a merit, or exalting virtue, consisting in a habit of meditation on the "things above," or things of the next world. Now it is quite true, that a person of beautiful mind, dwelling on whatever appears to them most desirable and lovely in a possible future, will not only pass their time pleasantly, but will even acquire, at last, a vague and wildly gentle charm of manner and feature, which will give them an air of peculiar sanctity in the eyes of others. Whatever real or apparent good there may be in this result, I want you to observe, children, that we have no real authority for the reveries to which it is owing. We are told nothing distinctly of the heavenly world; except that it will be free from sorrow, and pure from sin. What is said of pearl gates, golden floors, and the like, is accepted as merely figurative by religious enthusiasts themselves: and whatever they pass their time in conceiving, whether of the happiness of risen souls, of their intercourse, or of the appearance and employment of the heavenly powers, is entirely the product of their own imagination; and as completely and distinctly a work of fiction, or romantic invention, as any novel of Sir Walter Scott's. That the romance is founded on religious theory or doctrine;—that

no disagreeable or wicked persons are admitted into the story;—and that the inventor fervently hopes that some portion of it may hereafter come true, does not in the least alter the real nature of the effort or enjoyment.

Now, whatever indulgence may be granted to amiable people for pleasing themselves in this innocent way, it is beyond question, that to seclude themselves from the rough duties of life, merely to write religious romances, or, as in most cases, merely to dream them, without taking so much trouble as is implied in writing, ought not to be received as an act of heroic virtue. But, observe, even in admitting thus much, I have assumed that the fancies are just and beautiful, though fictitious. Now, what right have any of us to assume that our own fancies will assuredly be either the one or the other? That they delight us, and appear lovely to us, is no real proof of its not being wasted time to form them: and we may surely be led somewhat to distrust our judgment of them by observing what ignoble imaginations have sometimes sufficiently, or even enthusiastically, occupied the hearts of others. The principal source of the spirit of religious contemplation is the East; now I have here in my hand a Byzantine image of Christ, which, if you will look at it seriously, may, I think, at once and for ever render you cautious in the indulgence of a merely contemplative habit of mind. Observe, it is the fashion to look at such a thing only as a piece of barbarous art; that is the smallest part of its interest. What I want you to see, is the baseness and falseness of a religious state of enthusiasm, in which such a work could be dwelt upon with pious pleasure. That a figure, with two small round black beads for eyes, a gilded face, deep cut into horrible wrinkles; an open gash for a mouth, and a distorted skeleton for a body, wrapped about, to make it fine, with striped enamel of blue and gold; —that such a figure, I say, should ever have been thought helpful towards the conception of a Redeeming Deity, may make you, I think, very doubtful, even of the Divine approval,—much more of the Divine inspiration,—of religious reverie in general. You feel, doubtless, that your

own idea of Christ would be something very different from this; but in what does the difference consist? Not in any more divine authority in your imagination; but in the intellectual work of six intervening centuries; which, simply, by artistic discipline, has refined this crude conception for you, and filled you, partly with an innate sensation, partly with an acquired knowledge, of higher forms, —which render this Byzantine crucifix as horrible to you, as it was pleasing to its maker. More is required to excite your fancy; but your fancy is of no more authority than his was: and a point of national art-skill is quite conceivable, in which the best we can do now will be as offensive to the religious dreamers of the more highly cultivated time, as this Byzantine crucifix is to you.

MARY. But surely, Angelico will always retain his power over everybody?

L. Yes, I should think, always; as the gentle words of a child will: but you would be much surprised, Mary, if you thoroughly took the pains to analyse, and had the perfect means of analysing, that power of Angelico,—to discover its real sources. Of course it is natural, at first, to attribute it to the pure religious fervour by which he was inspired; but do you suppose Angelico was really the only monk, in all the Christian world of the middle ages, who laboured, in art, with a sincere religious enthusiasm?

MARY. No, certainly not.

L. Anything more frightful, more destructive of all religious faith whatever, than such a supposition, could not be. And yet, what other monk ever produced such work? I have myself examined carefully upwards of two thousand illuminated missals, with especial view to the discovery of any evidence of a similar result upon the art, from the monkish devotion; and utterly in vain.

MARY. But then, was not Fra Angelico a man of entirely separate and exalted genius?

L. Unquestionably; and granting him to be that, the peculiar phenomenon in his art is, to me, not its loveliness, but its weakness. The effect of "inspiration," had it been real, on a man of consummate genius, should have

been, one would have thought, to make everything that he did faultless and strong, no less than lovely. But of all men, deserving to be called "great," Fra Angelico permits to himself the least pardonable faults, and the most palpable follies. There is evidently within him a sense of grace, and power of invention, as great as Ghiberti's:—we are in the habit of attributing those high qualities to his religious enthusiasm; but, if they were produced by that enthusiasm in him, they ought to be produced by the same feelings in others; and we see they are not. Whereas, comparing him with contemporary great artists, of equal grace and invention, one peculiar character remains notable in him—which, logically, we ought therefore to attribute to the religious fervour;—and that distinctive character is, the contented indulgence of his own weaknesses, and perseverance in his own ignorances.

MARY. But that's dreadful! And what *is* the source of the peculiar charm which we all feel in his work?

L. There are many sources of it, Mary; united and seeming like one. You would never feel that charm but in the work of an entirely good man; be sure of that: but the goodness is only the recipient and modifying element, not the creative one. Consider carefully what delights you in any original picture of Angelico's. You will find, for one minor thing an exquisite variety and brightness of ornamental work. That is not Angelico's inspiration. It is the final result of the labour and thought of millions of artists, of all nations; from the earliest Egyptian potters downwards—Greeks, Byzantines, Hindoos, Arabs, Gauls, and Northmen—all joining in the toil; and consummating it in Florence, in that century, with such embroidery of robe and inlaying of armour as had never been seen till then; nor, probably, ever will be seen more. Angelico merely takes his share of this inheritance, and applies it in the tenderest way to subjects which are peculiarly acceptant of it. But the inspiration, if it exist anywhere, flashes on the knight's shield quite as radiantly as on the monk's picture. Examining farther into the

sources of your emotion in the Angelico work, you will find much of the impression of sanctity dependent on a singular repose and grace of gesture, consummating itself in the floating, flying, and above all, in the dancing groups. That is not Angelico's inspiration. It is only a peculiarly tender use of systems of grouping which had been long before developed by Giotto, Memmi, and Orcagna; and the real root of it all is simply—What do you think, children? The beautiful dancing of the Florentine maidens!

DORA (*indignant again.*) Now, I wonder what next! Why not say it all depended on Herodias' daughter, at once?

L. Yes; it is certainly a great argument against singing, that there were once sirens.

DORA. Well, it may be all very fine and philosophical; but shouldn't I just like to read you the end of the second volume of "Modern Painters"!

L. My dear, do you think any teacher could be worth your listening to, or anybody else's listening to, who had learned nothing, and altered his mind in nothing, from seven and twenty to seven and forty? But that second volume is very good for you as far as it goes. It is a great advance, and a thoroughly straight and swift one, to be led, as it is the main business of that second volume to lead you, from Dutch cattle-pieces, and ruffian-pieces, to Fra Angelico. And it is right for you also, as you grow older, to be strengthened in the general sense and judgment which may enable you to distinguish the weaknesses from the virtues of what you love: else you might come to love both alike; or even the weaknesses without the virtues. You might end by liking Overbeck and Cornelius as well as Angelico. However, I have perhaps been leaning a little too much to the merely practical side of things, in to-night's talk; and you are always to remember, children, that I do not deny, though I cannot affirm, the spiritual advantages resulting, in certain cases, from enthusiastic religious reverie, and from the other practices of saints and anchorites. The evidence respect-

ing them has never yet been honestly collected, much less dispassionately examined: but assuredly, there is in that direction a probability, and more than a probability, of dangerous error, while there is none whatever in the practice of an active, cheerful, and benevolent life. The hope of attaining a higher religious position, which induces us to encounter, for its exalted alternative, the risk of unhealthy error, is often, as I said, founded more on pride than piety; and those who, in modest usefulness, have accepted what seemed to them here the lowliest place in the kingdom of their Father, are not, I believe, the least likely to receive hereafter the command, then unmistakable, "Friend, go up higher."

LECTURE VIII

CRYSTAL CAPRICE

LECTURE VIII

CRYSTAL CAPRICE

Formal Lecture in Schoolroom, after some practical examination of minerals

L. We have seen enough, children, though very little of what might be seen if we had more time, of mineral structures produced by visible opposition, or contest among elements; structures of which the variety, however great, need not surprise us: for we quarrel, ourselves, for many and slight causes;—much more, one should think, may crystals, who can only feel the antagonism, not argue about it. But there is a yet more singular mimicry of our human ways in the varieties of form which appear owing to no antagonistic force; but merely to the variable humour and caprice of the crystals themselves: and I have asked you all to come into the schoolroom to-day, because, of course, this is a part of the crystal mind which must be peculiarly interesting to a feminine audience. (*Great symptoms of disapproval on the part of said audience.*) Now, you need not pretend that it will not interest you; why should it not? It is true that we men are never capricious; but that only makes us the more dull and disagreeable. You, who are crystalline in brightness, as well as in caprice, charm infinitely, by infinitude of change. (*Audible murmurs of "Worse and worse!" "As if we could be got over that way!" etc. The* LECTURER, *however, observing the expression of the features to be more complacent, proceeds.*) And the most curious mimicry, if not of your changes of fashion, at least of your various modes (in healthy periods) of national costume, takes place among

the crystals of different countries. With a little experience, it is quite possible to say at a glance, in what districts certain crystals have been found; and although, if we had knowledge extended and accurate enough, we might of course ascertain the laws and circumstances which have necessarily produced the form peculiar to each locality, this would be just as true of the fancies of the human mind. If we could know the exact circumstances which affect it, we could foretell what now seems to us only caprice of thought, as well as what now seems to us only caprice of crystal: nay, so far as our knowledge reaches, it is on the whole easier to find some reason why the peasant girls of Berne should wear their caps in the shape of butterflies; and the peasant girls of Munich their's in the shape of shells, than to say why the rock-crystals of Dauphiné should all have their summits of the shape of lip-pieces of flageolets, while those of St. Gothard are symmetrical; or why the fluor of Chamouni is rose-coloured, and in octahedrons, while the fluor of Weardale is green, and in cubes. Still farther removed is the hope, at present, of accounting for minor differences in modes of grouping and construction. Take, for instance, the caprices of this single mineral, quartz;—variations upon a single theme. It has many forms; but see what it will make out of this *one*, the six-sided prism. For shortness' sake, I shall call the body of the prism its "column," and the pyramid at the extremities its "cap." Now, here, first you have a straight column, as long and thin as a stalk of asparagus, with two little caps at the ends; and here you have a short thick column, as solid as a haystack, with two fat caps at the ends; and here you have two caps fastened together, and no column at all between them! Then here is a crystal with its column fat in the middle, and tapering to a little cap; and here is one stalked like a mushroom, with a huge cap put on the top of a slender column! Then here is a column built wholly out of little caps, with a large smooth cap at the top. And here is a column built of columns and caps; the caps all truncated about half way to their points. And

in both these last, the little crystals are set anyhow, and build the large one in a disorderly way; but here is a crystal made of columns and truncated caps, set in regular terraces all the way up.

MARY. But are not these groups of crystals, rather than one crystal?

L. What do you mean by a group, and what by one crystal?

DORA (*audibly aside, to* MARY, *who is brought to pause*). You know you are never expected to answer, Mary.

L. I'm sure this is easy enough. What do you mean by a group of people?

MARY. Three or four together, or a good many together, like the caps in these crystals.

L. But when a great many persons get together they don't take the shape of one person?

(MARY *still at pause.*)

ISABEL. No, because they can't; but, you know the crystals can; so why shouldn't they?

L. Well, they don't; that is to say, they don't always, nor even often. Look here, Isabel.

ISABEL. What a nasty ugly thing!

L. I'm glad you think it so ugly. Yet it is made of beautiful crystals; they are a little grey and cold in colour, but most of them are clear.

ISABEL. But they're in such horrid, horrid disorder!

L. Yes; all disorder is horrid, when it is among things that are naturally orderly. Some little girls' rooms are naturally *dis*orderly, I suppose; or I don't know how they could live in them, if they cry out so when they only see quartz crystals in confusion.

ISABEL. Oh! but how come they to be like that?

L. You may well ask. And yet you will always hear people talking as if they thought order more wonderful than disorder! It *is* wonderful—as we have seen; but to me, as to you, child, the supremely wonderful thing is that nature should ever be ruinous or wasteful, or deathful! I look at this wild piece of crystallisation with endless astonishment.

MARY. Where does it come from?

L. The Tête Noire of Chamonix. What makes it more strange is that it should be in a vein of fine quartz rock. If it were in a mouldering rock, it would be natural enough; but in the midst of so fine substance, here are the crystals tossed in a heap; some large, myriads small, (almost as small as dust), tumbling over each other like a terrified crowd, and glued together by the sides, and edges, and backs, and heads; some warped, and some pushed out and in, and all spoiled, and each spoiling the rest.

MARY. And how flat they all are!

L. Yes; that's the fashion at the Tête Noire.

MARY. But surely this is ruin, not caprice?

L. I believe it is in great part misfortune; and we will examine these crystal troubles in next lecture. But if you want to see the gracefullest and happiest caprices of which dust is capable, you must go to the Hartz; not that I ever mean to go there myself, for I want to retain the romantic feeling about the name; and I have done myself some harm already by seeing the monotonous and heavy form of the Brocken from the suburbs of Brunswick. But whether the mountains be picturesque or not, the tricks which the goblins (as I am told) teach the crystals in them, are incomparably pretty. They work chiefly on the mind of a docile, bluish-coloured, carbonate of lime; which comes out of a grey limestone. The goblins take the greatest possible care of its education, and see that nothing happens to it to hurt its temper: and when it may be supposed to have arrived at the crisis which is, to a well brought up mineral, what presentation at court is to a young lady—after which it is expected to set fashions—there's no end to its pretty ways of behaving. First it will make itself into pointed darts as fine as hoar-frost; here, it is changed into a white fur as fine as silk; here into little crowns and circlets, as bright as silver; as if for the gnome princesses to wear; here it is in beautiful little plates, for them to eat off; presently it is in towers, which they might be imprisoned

in; presently in caves and cells, where they may make nun-gnomes of themselves, and no gnome ever hear of them more; here is some of it in sheaves, like corn; here, some in drifts, like snow; here, some in rays, like stars: and, though these are, all of them, necessarily, shapes that the mineral takes in other places, they are all taken here with such a grace that you recognise the high caste and breeding of the crystals wherever you meet them; and know at once they are Hartz-born.

Of course, such fine things as these are only done by crystals which are perfectly good, and good-humoured; and of course, also, there are ill-humoured crystals who torment each other, and annoy quieter crystals, yet without coming to anything like serious war. Here (for once) is some ill-disposed quartz, tormenting a peaceable octahedron of fluor, in mere caprice. I looked at it the other night so long, and so wonderingly, just before putting my candle out, that I fell into another strange dream. But you don't care about dreams.

DORA. No; we didn't, yesterday; but you know we are made up of caprice; so we do, to-day: and you must tell it us directly.

L. Well, you see, Neith and her work were still much in my mind; and then, I had been looking over these Hartz things for you, and thinking of the sort of grotesque sympathy there seemed to be in them with the beautiful fringe and pinnacle work of Northern architecture. So, when I fell asleep, I thought I saw Neith and St. Barbara talking together.

DORA. But what had St. Barbara to do with it? [1]

L. My dear, I am quite sure St. Barbara is the patroness of good architects: not St. Thomas, whatever the old builders thought. It might be very fine, according to the monks' notions, in St. Thomas, to give all his employer's money away to the poor: but breaches of contract are bad foundations; and I believe, it was not he, but St. Barbara, who overlooked the work in all the buildings you and I care about. However that may be, it was

[1] Note v.

certainly she whom I saw in my dream with Neith. Neith was sitting weaving, and I thought she looked sad, and threw her shuttle slowly; and St. Barbara was standing at her side, in a stiff little gown, all ins and outs, and angles; but so bright with embroidery that it dazzled me whenever she moved; the train of it was just like a heap of broken jewels, it was so stiff, and full of corners, and so many-coloured, and bright. Her hair fell over her shoulders in long, delicate waves, from under a little three pinnacled crown, like a tower. She was asking Neith about the laws of architecture in Egypt and Greece; and when Neith told her the measures of the pyramids, St. Barbara said she thought they would have been better three-cornered: and when Neith told her the measures of the Parthenon, St. Barbara said she thought it ought to have had two transepts. But she was pleased when Neith told her of the temple of the dew, and of the Caryan maidens bearing its frieze: and then she thought that perhaps Neith would like to hear what sort of temples she was building herself, in the French valleys, and on the crags of the Rhine. So she began gossiping, just as one of you might to an old lady: and certainly she talked in the sweetest way in the world to Neith; and explained to her all about crockets and pinnacles: and Neith sat, looking very grave; and always graver as St. Barbara went on; till at last, I'm sorry to say, St. Barbara lost her temper a little.

MAY (*very grave herself*). "St. Barbara?"

L. Yes, May. Why shouldn't she? It was very tiresome of Neith to sit looking like that.

MAY. But, then, St. Barbara was a saint!

L. What's that, May?

MAY. A saint! A saint is—I'm sure you know!

L. If I did, it would not make me sure that you knew too, May: but I don't.

VIOLET (*expressing the incredulity of the audience*). Oh, —sir?

L. That is to say, I know that people are called saints who are supposed to be better than others: but I don't

know how much better they must be, in order to be saints; nor how nearly anybody may be a saint, and yet not be quite one; nor whether everybody who is called a saint was one; nor whether everybody who isn't called a saint, isn't one.

(*General silence; the audience feeling themselves on the verge of the Infinities—and a little shocked—and much puzzled by so many questions at once.*)

L. Besides, did you never hear that verse about being "called to be saints"?

MAY (*repeats Rom.* i. 7).

L. Quite right, May. Well, then, who are called to be that? People in Rome only?

MAY. Everybody, I suppose, whom God loves.

L. What! little girls as well as other people?

MAY. All grown-up people, I mean.

L. Why not little girls? Are they wickeder when they are little?

MAY. Oh, I hope not.

L. Why not little girls, then?

(*Pause.*)

LILY. Because, you know, we can't be worth anything if we're ever so good;—I mean, if we try to be ever so good; and we can't do difficult things—like saints.

L. I am afraid, my dear, that old people are not more able or willing for their difficulties than you children are for yours. All I can say is, that if ever I see any of you, when you are seven or eight and twenty, knitting your brows over any work you want to do or to understand, as I saw you, Lily, knitting your brows over your slate this morning, I should think you very noble women. But—to come back to my dream—St. Barbara *did* lose her temper a little; and I was not surprised. For you can't think how provoking Neith looked, sitting there just like a statue of sandstone; only going on weaving, like a machine; and never quickening the cast of her shuttle; while St. Barbara was telling her so eagerly all about the most beautiful things, and chattering away, as fast as bells ring on Christmas Eve, till she saw that Neith didn't

care; and then St. Barbara got as red as a rose, and stopped, just in time;—or I think she would really have said something naughty.

ISABEL. Oh, please, but didn't Neith say anything then?

L. Yes. She said, quite quietly, "It may be very pretty, my love; but it is all nonsense."

ISABEL. Oh dear, oh dear; and then?

L. Well; then I was a little angry myself, and hoped St. Barbara would be quite angry; but she wasn't. She bit her lips first; and then gave a great sigh—such a wild, sweet sigh—and then she knelt down and hid her face on Neith's knees. Then Neith smiled a little, and was moved.

ISABEL. Oh, I am so glad!

L. And she touched St. Barbara's forehead with a flower of white lotus; and St. Barbara sobbed once or twice, and then said: "If you only could see how beautiful it is, and how much it makes people feel what is good and lovely; and if you could only hear the children singing in the Lady chapels!" And Neith smiled,—but still sadly,—and said, "How do you know what I have seen, or heard, my love? Do you think all those vaults and towers of yours have been built without me? There was not a pillar in your Giotto's Santa Maria del Fiore which I did not set true by my spearshaft as it rose. But this pinnacle and flame work which has set your little heart on fire, is all vanity; and you will see what it will come to, and that soon; and none will grieve for it more than I. And then every one will disbelieve your pretty symbols and types. Men must be spoken simply to, my dear, if you would guide them kindly, and long." But St. Barbara answered, that, "Indeed she thought every one liked her work," and that "the people of different towns were as eager about their cathedral towers as about their privileges or their markets;" and then she asked Neith to come and build something with her, wall against tower; and "see whether the people will be as much pleased with your building as with mine." But Neith answered, "I will not contend with you, my dear. I strive not with

those who love me; and for those who hate me, it is not well to strive with me, as weaver Arachne knows. And remember, child, that nothing is ever done beautifully, which is done in rivalship; nor nobly, which is done in pride."

Then St. Barbara hung her head quite down, and said she was very sorry she had been so foolish; and kissed Neith; and stood thinking a minute: and then her eyes got bright again, and she said, she would go directly and build a chapel with five windows in it; four for the four cardinal virtues, and one for humility, in the middle, bigger than the rest. And Neith very nearly laughed quite out, I thought; certainly her beautiful lips lost all their sternness for an instant; then she said, "Well love, build it, but do not put so many colours into your windows as you usually do; else no one will be able to see to read, inside: and when it is built, let a poor village priest consecrate it, and not an archbishop." St. Barbara started a little, I thought, and turned as if to say something; but changed her mind, and gathered up her train, and went out. And Neith bent herself again to her loom, in which she was weaving a web of strange dark colours, I thought; but perhaps it was only after the glittering of St. Barbara's embroidered train: and I tried to make out the figures in Neith's web, and confused myself among them, as one always does in dreams; and then the dream changed altogether, and I found myself, all at once, among a crowd of little Gothic and Egyptian spirits, who were quarrelling: at least the Gothic ones were trying to quarrel; for the Egyptian ones only sat with their hands on their knees, and their aprons sticking out very stiffly; and stared. And after a while I began to understand what the matter was. It seemed that some of the troublesome building imps, who meddle and make continually, even in the best Gothic work, had been listening to St. Barbara's talk with Neith; and had made up their minds that Neith had no workpeople who could build against them. They were but dull imps, as you may fancy, by their thinking that; and never had done much, except

disturbing the great Gothic building angels at their work, and playing tricks to each other; indeed, of late they had been living years and years, like bats, up under the cornices of Strasbourg and Cologne cathedrals, with nothing to do but to make mouths at the people below. However, they thought they knew everything about tower building; and those who had heard what Neith said, told the rest; and they all flew down directly, chattering in German, like jackdaws, to show Neith's people what they could do. And they had found some of Neith's old work-people somewhere near Sais, sitting in the sun, with their hands on their knees; and abused them heartily: and Neith's people did not mind, at first, but, after a while, they seemed to get tired of the noise; and one or two rose up slowly, and laid hold of their measuring rods, and said, "If St. Barbara's people liked to build with them, tower against pyramid, they would show them how to lay stones." Then the Gothic little spirits threw a great many double somersaults for joy; and put the tips of their tongues out slily to each other, on one side; and I heard the Egyptians say, "they must be some new kind of frog—they didn't think there was much building in *them*." However, the stiff old workers took their rods, as I said, and measured out a square space of sand; but as soon as the German spirits saw that, they declared they wanted exactly that bit of ground to build on, themselves. Then the Egyptian builders offered to go farther off, and the German ones said, "Ja wohl." But as soon as the Egyptians had measured out another square, the little Germans said they must have some of that too. Then Neith's people laughed; and said, "they might take as much as they liked, but they would not move the plan of their pyramid again." Then the little Germans took three pieces, and began to build three spires directly; one large, and two little. And when the Eygptians saw they had fairly begun, they laid their foundation all round, of large square stones: and began to build, so steadily that they had like to have swallowed up the three little German spires. So when

the Gothic spirits saw that, they built their spires leaning, like the tower of Pisa, that they might stick out at the side of the pyramid. And Neith's people stared at them; and thought it very clever, but very wrong; and on they went, in their own way, and said nothing. Then the little Gothic spirits were terribly provoked because they could not spoil the shape of the pyramid; and they sat down all along the ledges of it to make faces; but that did no good. Then they ran to the corners, and put their elbows on their knees, and stuck themselves out as far as they could, and made more faces; but that did no good, neither. Then they looked up to the sky, and opened their mouths wide, and gobbled, and said it was too hot for work, and wondered when it would rain; but that did no good, neither. And all the while the Egyptian spirits were laying step above step, patiently. But when the Gothic ones looked, and saw how high they had got, they said, "Ach, Himmel!" and flew down in a great black cluster to the bottom; and swept out a level spot in the sand with their wings, in no time, and began building a tower straight up, as fast as they could. And the Egyptians stood still again to stare at them; for the Gothic spirits had got quite into a passion, and were really working very wonderfully. They cut the sandstone into strips as fine as reeds; and put one reed on the top of another, so that you could not see where they fitted: and they twisted them in and out like basket work, and knotted them into likenesses of ugly faces, and of strange beasts biting each other: and up they went, and up still, and they made spiral staircases at the corners, for the loaded workers to come up by (for I saw they were but weak imps, and could not fly with stones on their backs), and then they made traceried galleries for them to run round by; and so up again; with finer and finer work, till the Egyptians wondered whether they meant the thing for a tower or a pillar: and I heard them saying to one another, "It was nearly as pretty as lotus stalks; and if it were not for the ugly faces, there would be a fine temple, if they were going to build it all with pillars as big as that!"

But in a minute afterwards,—just as the Gothic spirits had carried their work as high as the upper course, but three or four, of the pyramid,—the Egyptians called out to them to "mind what they were about, for the sand was running away from under one of their tower corners." But it was too late to mind what they were about; for, in another instant, the whole tower sloped aside; and the Gothic imps rose out of it like a flight of puffins, in a single cloud; but screaming worse than any puffins you ever heard: and down came the tower, all in a piece, like a falling poplar, with its head right on the flank of the pyramid; against which it snapped short off. And of course that waked me!

MARY. What a shame of you to have such a dream, after all you have told us about Gothic architecture!

L. If you have understood anything I ever told you about it, you know that no architecture was ever corrupted more miserably; or abolished more justly by the accomplishment of its own follies. Besides, even in its days of power, it was subject to catastrophes of this kind. I have stood too often, mourning, by the grand fragment of the apse of Beauvais, not to have that fact well burnt into me. Still, you must have seen, surely, that these imps were of the Flamboyant school; or, at least, of the German schools correspondent with it in extravagance.

MARY. But, then, where is the crystal about which you dreamed all this?

L. Here; but I suppose little Pthah has touched it again, for it is very small. But, you see, here is the pyramid, built of great square stones of fluor spar, straight up; and here are the three little pinnacles of mischievous quartz, which have set themselves, at the same time, on the same foundation; only they lean like the tower of Pisa, and come out obliquely at the side: and here is one great spire of quartz which seems as if it had been meant to stand straight up, a little way off; and then had fallen down against the pyramid base, breaking its pinnacle away. In reality, it has crystallised horizontally, and terminated imperfectly: but, then, by what caprice does

one crystal form horizontally, when all the rest stand upright? But this is nothing to the phantasies of fluor, and quartz, and some other such companions, when they get leave to do anything they like. I could show you fifty specimens, about every one of which you might fancy a new fairy tale. Not that, in truth, any crystals get leave to do quite what they like; and many of them are sadly tried, and have little time for caprices—poor things!

MARY. I thought they always looked as if they were either in play or in mischief! What trials have they?

L. Trials much like our own. Sickness, and starvation; fevers, and agues, and palsy; oppression; and old age, and the necessity of passing away in their time, like all else. If there's any pity in you, you must come tomorrow, and take some part in these crystal griefs.

DORA. I am sure we shall cry till our eyes are red.

L. Ah, you may laugh, Dora: but I've been made grave, not once, nor twice, to see that even crystals "cannot choose but be old" at last. It may be but a shallow proverb of the Justice's; but it is a shrewdly wide one.

DORA (*pensive, for once*). I suppose it *is* very dreadful to be old! But then (*brightening again*), what should we do without our dear old friends, and our nice old lecturers?

L. If all nice old lecturers were minded as little as one I know of——

DORA. And if they all meant as little what they say, would they not deserve it? But we'll come—we'll come, and cry.

LECTURE IX

CRYSTAL SORROWS

LECTURE IX

CRYSTAL SORROWS

Working Lecture in Schoolroom

L. We have been hitherto talking, children, as if crystals might live, and play, and quarrel, and behave ill or well, according to their characters, without interruption from anything else. But so far from this being so, nearly all crystals, whatever their characters, have to live a hard life of it, and meet with many misfortunes. If we could see far enough, we should find, indeed, that, at the root, all their vices were misfortunes: but to-day I want you to see what sort of troubles the best crystals have to go through, occasionally, by no fault of their own.

This black thing, which is one of the prettiest of the very few pretty black things in the world, is called "Tourmaline." It may be transparent, and green, or red, as well as black; and then no stone can be prettier; (only, all the light that gets into it, I believe, comes out a good deal the worse; and is not itself again for a long while). But this is the commonest state of it,—opaque, and as black as jet.

MARY. What does "Tourmaline" mean?

L. They say it is Ceylanese, and I don't know Ceylanese; but we may always be thankful for a graceful word, whatever it means.

MARY. And what is it made of?

L. A little of everything; there's always flint, and clay, and magnesia in it; and the black is iron, according to its fancy; and there's boracic acid, if you know what that is; and if you don't, I cannot tell you to-day; and

it doesn't signify: and there's potash, and soda; and, on the whole, the chemistry of it is more like a mediæval doctor's prescription, than the making of a respectable mineral: but it may, perhaps, be owing to the strange complexity of its make, that it has a notable habit which makes it, to me, one of the most interesting of minerals. You see these two crystals are broken right across, in many places, just as if they had been shafts of black marble fallen from a ruinous temple; and here they lie, imbedded in white quartz, fragment succeeding fragment, keeping the line of the original crystal, while the quartz fills up the intervening spaces. Now tourmaline has a trick of doing this, more than any other mineral I know: here is another bit which I picked up on the glacier of Macugnaga; it is broken, like a pillar built of very flat broad stones, into about thirty joints, and all these are heaved and warped away from each other sideways, almost into a line of steps; and then all is filled up with quartz paste. And here, lastly, is a green Indian piece, in which the pillar is first disjointed, and then wrung round into the shape of an S.

MARY. How *can* this have been done?

L. There are a thousand ways in which it may have been done; the difficulty is not to account for the doing of it; but for the showing of it in some crystals, and not in others. You never by any chance get a quartz crystal broken or twisted in this way. If it break or twist at all, which it does sometimes, like the spire of Dijon, it is by its own will or fault; it never seems to have been passively crushed. But, for the forces which cause this passive ruin of the tourmaline,—here is a stone which will show you multitudes of them in operation at once. It is known as "brecciated agate," beautiful, as you see; and highly valued as a pebble: yet, so far as I can read or hear, no one has ever looked at it with the least attention. At the first glance, you see it is made of very fine red striped agates, which have been broken into small pieces, and fastened together again by paste, also of agate. There would be nothing wonderful in this, if this were all. It

is well known that by the movements of strata, portions of rock are often shattered to pieces:—well known also that agate is a deposit of flint by water under certain conditions of heat and pressure: there is, therefore, nothing wonderful in an agate's being broken; and nothing wonderful in its being mended with the solution out of which it was itself originally congealed. And with this explanation, most people, looking at a brecciated agate, or brecciated anything, seem to be satisfied. I was so myself, for twenty years; but, lately happening to stay for some time at the Swiss Baden, where the beach of the Limmat is almost wholly composed of brecciated limestones, I began to examine them thoughtfully; and perceived, in the end, that they were, one and all, knots of as rich mystery as any poor little human brain was ever lost in. That piece of agate in your hand, Mary, will show you many of the common phenomena of breccias: but you need not knit your brows over it in that way; depend upon it, neither you nor I shall ever know anything about the way it was made, as long as we live.

DORA. That does not seem much to depend upon.

L. Pardon me, puss. When once we gain some real notion of the extent and the unconquerableness of our ignorance, it is a very broad and restful thing to depend upon: you can throw yourself upon it at ease, as on a cloud, to feast with the gods. You do not thenceforward trouble yourself,—nor any one else,—with theories, or the contradiction of theories; you neither get headache nor heartburning; and you never more waste your poor little store of strength, or allowance of time.

However, there are certain facts, about this agate-making, which I can tell you; and then you may look at it in a pleasant wonder as long as you like; pleasant wonder is no loss of time.

First, then, it is not broken freely by a blow; it is slowly wrung, or ground, to pieces. You can only with extreme dimness conceive the force exerted on mountains in transitional states of movement. You have all read a little geology; and you know how coolly geologists talk

of mountains being raised or depressed. They talk coolly of it, because they are accustomed to the fact; but the very universality of the fact prevents us from ever conceiving distinctly the conditions of force involved. You know I was living last year in Savoy: my house was on the back of a sloping mountain, which rose gradually for two miles, behind it; and then fell at once in a great precipice towards Geneva, going down three thousand feet in four or five cliffs, or steps. Now that whole group of cliffs had simply been torn away by sheer strength from the rocks below, as if the whole mass had been as soft as biscuit. Put four or five captains' biscuits on the floor, on the top of one another; and try to break them all in half, not by bending, but by holding one half down, and tearing the other halves straight up;—of course you will not be able to do it, but you will feel and comprehend the sort of force needed. Then, fancy each captains' biscuit a bed of rock, six or seven hundred feet thick; and the whole mass torn straight through; and one half heaved up three thousand feet, grinding against the other as it rose,—and you will have some idea of the making of the Mont Saléve.

MAY. But it must crush the rocks all to dust!

L. No; for there is no room for dust. The pressure is too great; probably the heat developed also so great that the rock is made partly ductile; but the worst of it is, that we never can see these parts of mountains in the state they were left in at the time of their elevation; for it is precisely in these rents and dislocations that the crystalline power principally exerts itself. It is essentially a styptic power, and wherever the earth is torn, it heals and binds: nay, the torture and grieving of the earth seem necessary to bring out its full energy; for you only find the crystalline living power fully in action, where the rents and faults are deep and many.

DORA. If you please, sir,—would you tell us—what are "faults"?

L. You never heard of such things?

DORA. Never in all our lives.

L. When a vein of rock which is going on smoothly, is interrupted by another troublesome little vein, which stops it, and puts it out, so that it has to begin again in another place—that is called a fault. *I* always think it ought to be called the fault of the vein that interrupts it; but the miners always call it the fault of the vein that is interrupted.

DORA. So it is, if it does not begin again where it left off.

L. Well, that is certainly the gist of the business: but, whatever good-natured old lecturers may do, the rocks have a bad habit, when they are once interrupted, of never asking "Where was I?"

DORA. When the two halves of the dining table came separate, yesterday, was that a "fault"?

L. Yes; but not the table's. However, it is not a bad illustration, Dora. When beds of rock are only interrupted by a fissure, but remain at the same level, like the two halves of the table, it is not called a fault, but only a fissure; but if one half of the table be either tilted higher than the other, or pushed to the side, so that the two parts will not fit, it is a fault. You had better read the chapter on faults in Jukes's Geology; then you will know all about it. And this rent that I am telling you of in the Saléve, is one only of myriads, to which are owing the forms of the Alps, as, I believe, of all great mountain chains. Wherever you see a precipice on any scale of real magnificence, you will nearly always find it owing to some dislocation of this kind; but the point of chief wonder to me, is the delicacy of the touch by which these gigantic rents have been apparently accomplished. Note, however, that we have no clear evidence, hitherto, of the time taken to produce any of them. We know that a change of temperature alters the position and the angles of the atoms of crystals, and also the entire bulk of rocks. We know that in all volcanic, and the greater part of all subterranean, action, temperatures are continually changing, and therefore masses of rock must be expanding or contracting, with infinite slowness, but with infinite

force. This pressure must result in mechanical strain somewhere, both in their own substance, and in that of the rocks surrounding them; and we can form no conception of the result of irresistible pressure, applied so as to rend and raise, with imperceptible slowness of gradation, masses thousands of feet in thickness. We want some experiments tried on masses of iron and stone; and we can't get them tried, because Christian creatures never will seriously and sufficiently spend money, except to find out the shortest ways of killing each other. But, besides this slow kind of pressure, there is evidence of more or less sudden violence, on the same terrific scale; and, through it all, the wonder, as I said, is always to me the delicacy of touch. I cut a block of the Saléve limestone from the edge of one of the principal faults which have formed the precipice; it is a lovely compact limestone, and the fault itself is filled up with a red breccia, formed of the crushed fragments of the torn rock, cemented by a rich red crystalline paste. I have had the piece I cut from it smoothed, and polished across the junction; here it is; and you may now pass your soft little fingers over the surface, without so much as feeling the place where a rock which all the hills of England might have been sunk in the body of, and not a summit seen, was torn asunder through that whole thickness, as a thin dress is torn when you tread upon it.

(*The audience examine the stone, and touch it timidly; but the matter remains inconceivable to them.*)

MARY (*struck by the beauty of the stone*). But this is almost marble?

L. It is quite marble. And another singular point in the business, to my mind, is that these stones, which men have been cutting into slabs, for thousands of years, to ornament their principal buildings with,—and which, under the general name of "marble," have been the delight of the eyes, and the wealth of architecture, among all civilised nations,—are precisely those on which the signs and brands of these earth-agonies have been chiefly struck; and there is not a purple vein nor flaming zone

in them, which is not the record of their ancient torture. What a boundless capacity for sleep, and for serene stupidity, there is in the human mind! Fancy reflective beings, who cut and polish stones for three thousand years, for the sake of the pretty stains upon them; and educate themselves to an art at last, (such as it is,) of imitating these veins by dextrous painting;—and never a curious soul of them, all that while, asks, "What painted the rocks?"

(*The audience look dejected, and ashamed of themselves.*)

The fact is, we are all, and always, asleep, through our lives; and it is only by pinching ourselves very hard that we ever come to see, or understand, anything. At least, it is not always we who pinch ourselves; sometimes other people pinch us; which I suppose is very good of them,—or other things, which I suppose is very proper of them. But it is a sad life; made up chiefly of naps and pinches.

(*Some of the audience, on this, appearing to think that the others require pinching, the* LECTURER *changes the subject.*)

Now, however, for once, look at a piece of marble carefully, and think about it. You see this is one side of the fault; the other side is down or up, nobody knows where; but, on this side, you can trace the evidence of the dragging and tearing action. All along the edge of this marble, the ends of the fibres of the rock are torn, here an inch, and there half an inch, away from each other; and you see the exact places where they fitted, before they were torn separate; and you see the rents are now all filled up with the sanguine paste, full of the broken pieces of the rock; the paste itself seems to have been half melted, and partly to have also melted the edge of the fragments it contains, and then to have crystallised with them, and round them. And the brecciated agate I first showed you contains exactly the same phenomena; a zoned crystallisation going on amidst the cemented fragments, partly altering the structure of those fragments themselves, and subject to continual change, either in

the intensity of its own power, or in the nature of the materials submitted to it;—so that, at one time, gravity acts upon them, and disposes them in horizontal layers, or causes them to droop in stalactites; and at another, gravity is entirely defied, and the substances in solution are crystallised in bands of equal thickness on every side of the cell. It would require a course of lectures longer than these, (I have a great mind,—you have behaved so saucily—to stay and give them) to describe to you the phenomena of this kind, in agates and chalcedonies only; —nay, there is a single sarcophagus in the British Museum, covered with grand sculpture of the 18th dynasty, which contains in the magnificent breccia, (agates and jaspers imbedded in porphyry), out of which it is hewn, material for the thought of years; and record of the earth-sorrow of ages in comparison with the duration of which, the Egyptian letters tell us but the history of the evening and morning of a day.

Agates, I think, of all stones, confess most of their past history; but all crystallisation goes on under, and partly records, circumstances of this kind — circumstances of infinite variety, but always involving difficulty, interruption, and change of condition at different times. Observe, first, you have the whole mass of the rock in motion, either contracting itself, and so gradually widening the cracks; or being compressed, and thereby closing them, and crushing their edges;—and, if one part of its substance be softer, at the given temperature, than another, probably squeezing that softer substance out into the veins. Then the veins themselves, when the rock leaves them open by its contraction, act with various power of suction upon its substance;—by capillary attraction when they are fine,—by that of pure vacuity when they are larger, or by changes in the constitution and condensation of the mixed gases with which they have been originally filled. Those gases themselves may be supplied in all variation of volume and power from below; or, slowly, by the decomposition of the rocks themselves: and, at changing temperatures, must exert relatively changing

forces of decomposition and combination on the walls of the veins they fill; while water, at every degree of heat and pressure, (from beds of everlasting ice, alternate with cliffs of native rock, to volumes of red hot, or white hot, steam) congeals, and drips, and throbs, and thrills, from crag to crag; and breathes from pulse to pulse of foaming or fiery arteries, whose beating is felt through chains of the great islands of the Indian seas, as your own pulses lift your bracelets, and makes whole kingdoms of the world quiver in deadly earthquake, as if they were light as aspen leaves. And, remember, the poor little crystals have to live their lives, and mind their own affairs, in the midst of all this, as best they may. They are wonderfully like human creatures,—forget all that is going on if they don't see it, however dreadful; and never think what is to happen to-morrow. They are spiteful or loving, and indolent or painstaking, and orderly or licentious, with no thought whatever of the lava or the flood which may break over them any day; and evaporate them into air-bubbles, or wash them into a solution of salts. And you may look at them, once understanding the surrounding conditions of their fate, with an endless interest. You will see crowds of unfortunate little crystals, who have been forced to constitute themselves in a hurry, their dissolving element being fiercely scorched away; you will see them doing their best, bright and numberless, but tiny. Then you will find indulged crystals, who have had centuries to form themselves in, and have changed their mind and ways continually; and have been tired, and taken heart again; and have been sick, and got well again; and thought they would try a different diet, and then thought better of it; and made but a poor use of their advantages, after all. And others you will see, who have begun life as wicked crystals; and then have been impressed by alarming circumstances, and have become converted crystals, and behaved amazingly for a little while, and fallen away again, and ended, but discreditably, perhaps even in decomposition; so that one doesn't know what will become of them. And sometimes you will see deceit-

ful crystals, that look as soft as velvet, and are deadly to all near them; and sometimes you will see deceitful crystals, that seem flint-edged, like our little quartz-crystal of a housekeeper here, (hush! Dora,) and are endlessly gentle and true wherever gentleness and truth are needed. And sometimes you will see little child-crystals put to school like school-girls, and made to stand in rows; and taken the greatest care of, and taught how to hold themselves up, and behave: and sometimes you will see unhappy little child-crystals left to lie about in the dirt, and pick up their living, and learn manners, where they can. And sometimes you will see fat crystals eating up thin ones, like great capitalists and little labourers; and politico-economic crystals teaching the stupid ones how to eat each other, and cheat each other; and foolish crystals getting in the way of wise ones; and impatient crystals spoiling the plans of patient ones, irreparably; just as things go on in the world. And sometimes you may see hypocritical crystals taking the shape of others, though they are nothing like in their minds; and vampire crystals eating out the hearts of others; and hermit-crab crystals living in the shells of others; and parasite crystals living on the means of others; and courtier crystals glittering in attendance upon others; and all these, besides the two great companies of war and peace, who ally themselves, resolutely to attack, or resolutely to defend. And for the close, you see the broad shadow and deadly force of inevitable fate, above all this: you see the multitudes of crystals whose time has come; not a set time, as with us, but yet a time, sooner or later, when they all must give up their crystal ghosts:—when the strength by which they grew, and the breath given them to breathe, pass away from them; and they fail, and are consumed, and vanish away; and another generation is brought to life, framed out of their ashes.

MARY. It is very terrible. Is it not the complete fulfilment, down into the very dust, of that verse: "The whole creation groaneth and travaileth in pain"?

L. I do not know that it is in pain, Mary: at least, the

evidence tends to show that there is much more pleasure than pain, as soon as sensation becomes possible.

LUCILLA. But then, surely, if we are told that it is pain, it must be pain?

L. Yes; if we are told; and told in the way you mean, Lucilla; but nothing is said of the proportion to pleasure. Unmitigated pain would kill any of us in a few hours; pain equal to our pleasures would make us loathe life; the word itself cannot be applied to the lower conditions of matter, in its ordinary sense. But wait till to-morrow to ask me about this. To-morrow is to be kept for questions and difficulties; let us keep to the plain facts to-day. There is yet one group of facts connected with this rending of the rocks, which I especially want you to notice. You know, when you have mended a very old dress, quite meritoriously, till it won't mend any more——

EGYPT (*interrupting*). Could not you sometimes take gentlemen's work to illustrate by?

L. Gentlemen's work is rarely so useful as yours, Egypt; and when it is useful, girls cannot easily understand it.

DORA. I am sure we should understand it better than gentlemen understand about sewing.

L. My dear, I hope I always speak modestly, and under correction, when I touch upon matters of the kind too high for me; and besides, I never intend to speak otherwise than respectfully of sewing;—though you always seem to think I am laughing at you. In all seriousness, illustrations from sewing are those which Neith likes me best to use; and which young ladies ought to like everybody to use. What do you think the beautiful word "wife" comes from?

DORA (*tossing her head*). I don't think it is a particularly beautiful word.

L. Perhaps not. At your ages you may think "bride" sounds better; but wife's the word for wear, depend upon it. It is the great word in which the English and Latin languages conquer the French and the Greek. I hope the French will some day get a word for it, yet,

instead of their dreadful "femme." But what do you think it comes from?

DORA. I never *did* think about it?

L. Nor you, Sibyl?

SIBYL. No; I thought it was Saxon, and stopped there.

L. Yes; but the great good of Saxon words is, that they usually do mean something. Wife means "weaver." You have all the right to call yourselves little "housewives," when you sew neatly.

DORA. But I don't think we want to call ourselves "little housewives."

L. You must either be house-Wives, or house-Moths; remember that. In the deep sense, you must either weave men's fortunes, and embroider them; or feed upon, and bring them to decay. You had better let me keep my sewing illustration, and help me out with it.

DORA. Well, we'll hear it, under protest.

L. You have heard it before; but with reference to other matters. When it is said, "no man putteth a piece of new cloth on an old garment, else it taketh from the old," does it not mean that the new piece tears the old one away at the sewn edge?

DORA. Yes; certainly.

L. And when you mend a decayed stuff with strong thread, does not the whole edge come away sometimes, when it tears again?

DORA. Yes; and then it is of no use to mend it any more.

L. Well, the rocks don't seem to think that: but the same thing happens to them continually. I told you they were full of rents, or veins. Large masses of mountain are sometimes as full of veins as your hand is; and of veins nearly as fine; (only you know a rock vein does not mean a tube, but a crack or cleft). Now these clefts are mended, usually, with the strongest material the rock can find; and often literally with threads; for the gradually opening rent seems to draw the substance it is filled with into fibres, which cross from one side of it to the

other, and are partly crystalline; so that, when the crystals become distinct, the fissure has often exactly the look of a tear, brought together with strong cross stitches. Now when this is completely done, and all has been fastened and made firm, perhaps some new change of temperature may occur, and the rock begin to contract again. Then the old vein must open wider; or else another open elsewhere. If the old vein widen, it *may* do so at its centre; but it constantly happens, with well filled veins, that the cross stitches are too strong to break: the walls of the vein, instead, are torn away by them; and another little supplementary vein — often three or four successively—will be thus formed at the side of the first.

MARY. That is really very much like our work. But what do the mountains use to sew with?

L. Quartz, whenever they can get it: pure limestones are obliged to be content with carbonate of lime; but most mixed rocks can find some quartz for themselves. Here is a piece of black slate from the Buet: it looks merely like dry dark mud;—you could not think there was any quartz in it; but, you see, its rents are all stitched together with beautiful white thread, which is the purest quartz, so close drawn that you can break it like flint, in the mass; but, where it has been exposed to the weather, the fine fibrous structure is shown: and, more than that, you see the threads have been all twisted and pulled aside, this way and the other, by the warpings and shifting of the sides of the vein as it widened.

MARY. It is wonderful! But is that going on still? Are the mountains being torn and sewn together again at this moment?

L. Yes, certainly, my dear: but I think, just as certainly (though geologists differ on this matter), not with the violence, or on the scale, of their ancient ruin and renewal. All things seem to be tending towards a condition of at least temporary rest; and that groaning and travailing of the creation, as, assuredly, not wholly in pain, is not, in the full sense, "until now."

MARY. I want so much to ask you about that!

SIBYL. Yes; and we all want to ask you about a great many other things besides.

L. It seems to me that you have got quite as many new ideas as are good for any of you at present: and I should not like to burden you with more; but I must see that those you have are clear, if I can make them so; so we will have one more talk, for answer of questions, mainly. Think over all the ground, and make your difficulties thoroughly presentable. Then we'll see what we can make of them.

DORA. They shall all be dressed in their very best; and curtsey as they come in.

L. No, no, Dora; no curtseys, if you please. I had enough of them the day you all took a fit of reverence, and curtsied me out of the room.

DORA. But, you know, we cured ourselves of the fault, at once, by that fit. We have never been the least respectful since. And the difficulties will only curtsey themselves out of the room, I hope;—come in at one door—vanish at the other.

L. What a pleasant world it would be, if all its difficulties were taught to behave so! However, one can generally make something, or (better still) nothing, or at least less, of them, if they thoroughly know their own minds; and your difficulties—I must say that for you, children,—generally do know their own minds, as you do yourselves.

DORA. That is very kindly said for us. Some people would not allow so much as that girls had any minds to know.

L. They will at least admit you have minds to change, Dora.

MARY. You might have left us the last speech, without a retouch. But we'll put our little minds, such as they are, in the best trim we can, for to-morrow.

LECTURE X

THE CRYSTAL REST

LECTURE X

THE CRYSTAL REST

Evening. The fireside. L.*'s arm-chair in the comfortablest corner.*

L. (*perceiving various arrangements being made of foot-stool, cushion, screen, and the like*). Yes, yes, it's all very fine! and I am to sit here to be asked questions till supper-time, am I?

DORA. I don't think you can have any supper to-night:—we've got so much to ask.

LILY. Oh, Miss Dora! We can fetch it him here, you know, so nicely!

L. Yes, Lily, that will be pleasant, with competitive examination going on over one's plate; the competition being among the examiners. Really, now that I know what teasing things girls are, I don't so much wonder that people used to put up patiently with the dragons who took *them* for supper. But I can't help myself, I suppose;—no thanks to St. George. Ask away, children, and I'll answer as civilly as may be.

DORA. We don't so much care about being answered civilly, as about not being asked things back again.

L. "Ayez seulement la patience que je parle." There shall be no requitals.

DORA. Well, then, first of all—What shall we ask first, Mary?

MARY. It does not matter. I think all the questions come into one, at last, nearly.

DORA. You know, you always talk as if the crystals were alive; and we never understand how much you are in play, and how much in earnest. That's the first thing.

L. Neither do I understand, myself, my dear, how much I am in earnest. The stones puzzle me as much as I puzzle you. They look as if they were alive, and make me speak as if they were; and I do not in the least know how much truth there is in the appearance. I'm not to ask things back again to-night, but all questions of this sort lead necessarily to the one main question, which we asked, before, in vain, "What is it to be alive?"

DORA. Yes; but we want to come back to that: for we've been reading scientific books about the "conservation of forces," and it seems all so grand, and wonderful; and the experiments are so pretty; and I suppose it must be all right: but then the books never speak as if there were any such thing as "life."

L. They mostly omit that part of the subject, certainly, Dora: but they are beautifully right as far as they go; and life is not a convenient element to deal with. They seem to have been getting some of it into and out of bottles, in their "ozone" and "antizone" lately: but they still know little of it; and, certainly, I know less.

DORA. You promised not to be provoking, to-night.

L. Wait a minute. Though, quite truly, I know less of the secrets of life than the philosophers do; I yet know one corner of ground on which we artists can stand, literally as "Life Guards" at bay, as steadily as the Guards at Inkermann; however hard the philosophers push. And you may stand with us, if once you learn to draw nicely.

DORA. I'm sure we are all trying! but tell us where we may stand.

L. You may always stand by Form, against Force. To a painter, the essential character of anything is the form of it; and the philosophers cannot touch that. They come and tell you, for instance, that there is as much heat, or motion, or calorific energy, (or whatever else they like to call it) in a tea-kettle as in a Gier-eagle. Very good; that is so; and it is very interesting. It requires just as much heat as will boil the kettle, to take

the Gier-eagle up to his nest; and as much more to bring him down again on a hare or a partridge. But we painters, acknowledging the equality and similarity of the kettle and the bird in all scientific respects, attach, for our part, our principal interest to the difference in their forms. For us, the primarily cognisable facts, in the two things, are, that the kettle has a spout, and the eagle a beak; the one a lid on its back, the other a pair of wings;—not to speak of the distinction also of volition, which the philosophers may properly call merely a form or mode of force;—but then, to an artist, the form, or mode, is the gist of the business. The kettle chooses to sit still on the hob; the eagle to recline on the air. It is the fact of the choice, not the equal degree of temperature in the fulfilment of it, which appears to us the more interesting circumstance;—though the other is very interesting too. Exceedingly so! Don't laugh, children; the philosophers have been doing quite splendid work lately, in their own way: especially, the transformation of force into light is a great piece of systematised discovery; and this notion about the sun's being supplied with his flame by ceaseless meteoric hail is grand, and looks very likely to be true. Of course, it is only the old gunlock,—flint and steel,—on a large scale: but the order and majesty of it are sublime. Still, we sculptors and painters care little about it. "It is very fine, we say, and very useful, this knocking the light out of the sun, or into it, by an eternal cataract of planets. But you may hail away, so, for ever, and you will not knock out what we can. Here is a bit of silver, not the size of half-a-crown, on which, with a single hammer stroke, one of us, two thousand and odd years ago, hit out the head of the Apollo of Clazomenæ. It is merely a matter of form; but if any of you philosophers, with your whole planetary system to hammer with, can hit out such another bit of silver as this,—we will take off our hats to you. For the present, we keep them on."

MARY. Yes, I understand; and that is nice: but I don't think we shall any of us like having only form to depend upon.

L. It was not neglected in the making of Eve, my dear.

Mary. It does not seem to separate us from the dust of the ground. It is that breathing of the life which we want to understand.

L. So you should: but hold fast to the form, and defend that first, as distinguished from the mere transition of forces. Discern the moulding hand of the potter commanding the clay, from his merely beating foot, as it turns the wheel. If you can find incense, in the vase, afterwards,—well: but it is curious how far mere form will carry you ahead of the philosophers. For instance, with regard to the most interesting of all their modes of force—light;—they never consider how far the existence of it depends on the putting of certain vitreous and nervous substances into the formal arrangement which we call an eye. The German philosophers began the attack, long ago, on the other side, by telling us there was no such thing as light at all, unless we chose to see it: now, German and English, both, have reversed their engines, and insist that light would be exactly the same light that it is, though nobody could ever see it. The fact being that the force must be there, and the eyes there; and "light" means the effect of the one on the other;—and perhaps, also—(Plato saw farther into that mystery than any one has since, that I know of),—on something a little way within the eyes; but we may stand quite safe, close behind the retina, and defy the philosophers.

Sibyl. But I don't care so much about defying the philosophers, if only one could get a clear idea of life, or soul, for one's self.

L. Well, Sibyl, you used to know more about it, in that cave of yours, than any of us. I was just going to ask you about inspiration, and the golden bough, and the like; only I remembered I was not to ask anything. But, will not you, at least, tell us whether the ideas of Life, as the power of putting things together, or "making" them; and of Death, as the power of pushing things separate, or "unmaking" them, may not be very simply held in balance against each other?

SIBYL. No, I am not in my cave to-night; and cannot tell you anything.

L. I think they may. Modern Philosophy is a great separator; it is little more than the expansion of Molière's great sentence, "Il s'ensuit de là, que tout ce qu'il y a de beau est dans les dictionnaires; il n'y a que les mots qui sont transposés." But when you used to be in your cave, Sibyl, and to be inspired, there was, (and there remains still in some small measure) beyond the merely formative and sustaining power, another, which we painters call "passion"—I don't know what the philosophers call it; we know it makes people red, or white; and therefore it must be something, itself: and perhaps it is the most truly "poetic" or "making" force of all, creating a world of its own out of a glance, or a sigh: and the want of passion is perhaps the truest death, or "unmaking" of everything;—even of stones. By the way, you were all reading about that ascent of the Aiguille Verte, the other day?

SIBYL. Because you had told us it was so difficult, you thought it could not be ascended.

L. Yes; I believed the Aiguille Verte would have held its own. But do you recollect what one of the climbers exclaimed, when he first felt sure of reaching the summit?

SIBYL. Yes, it was, "Oh, Aiguille Verte, vous êtes morte, vous êtes morte!"

L. That was true instinct. Real philosophic joy. Now can you at all fancy the difference between that feeling of triumph in a mountain's death; and the exultation of your beloved poet, in its life—

> "Quantus Athos, aut quantus Eryx, aut ipse coruscis
> Quum fremit ilicibus quantus, gaudetque nivali
> Vertice, se attollens paterApenninus ad auras."

DORA. You must translate for us mere house-keepers, please;—whatever the cave-keepers may know about it.

MARY. Will Dryden do?

L. No. Dryden is a far way worse than nothing, and nobody will "do." You can't translate it. But this is all you need know, that the lines are full of a passionate

sense of the Apennines' fatherhood, or protecting power over Italy; and of sympathy with their joy in their snowy strength in heaven; and with the same joy, shuddering through all the leaves of their forests.

MARY. Yes, that is a difference indeed! but then, you know, one can't help feeling that it is fanciful. It is very delightful to imagine the mountains to be alive; but then, —*are* they alive?

L. It seems to me, on the whole, Mary, that the feelings of the purest and most mightily passioned human souls are likely to be the truest. Not, indeed, if they do not desire to know the truth, or blind themselves to it that they may please themselves with passion; for then they are no longer pure; but if, continually seeking and accepting the truth as far as it is discernible, they trust their Maker for the integrity of the instincts He has gifted them with, and rest in the sense of a higher truth which they cannot demonstrate, I think they will be most in the right, so.

DORA *and* JESSIE (*clapping their hands*). Then we really may believe that the mountains are living?

L. You may at least earnestly believe, that the presence of the spirit which culminates in your own life, shows itself in dawning, wherever the dust of the earth begins to assume any orderly and lovely state. You will find it impossible to separate this idea of gradated manifestation from that of the vital power. Things are not either wholly alive, or wholly dead. They are less or more alive. Take the nearest, most easily examined instance—the life of a flower. Notice what a different degree and kind of life there is in the calyx and the corolla. The calyx is nothing but the swaddling clothes of the flower; the child-blossom is bound up in it, hand and foot; guarded in it, restrained by it, till the time of birth. The shell is hardly more subordinate to the germ in the egg, than the calyx to the blossom. It bursts at last; but it never lives as the corolla does. It may fall at the moment its task is fulfilled, as in the poppy; or wither gradually, as in the buttercup; or persist in a ligneous apathy, after the

flower is dead, as in the rose; or harmonise itself so as to share in the aspect of the real flower, as in the lily; but it never shares in the corolla's bright passion of life. And the gradations which thus exist between the different members of organic creatures, exist no less between the different ranges of organism. We know no higher or more energetic life than our own; but there seems to me this great good in the idea of gradation of life—it admits the idea of a life above us, in other creatures, as much nobler than ours, as ours is nobler than that of the dust.

MARY. I am glad you have said that; for I know Violet and Lucilla and May want to ask you something; indeed, we all do; only you frightened Violet so, about the ant-hill, that she can't say a word; and May is afraid of your teasing her, too: but I know they are wondering why you are always telling them about heathen gods and goddesses, as if you half believed in them; and you represent them as good; and then we see there is really a kind of truth in the stories about them; and we are all puzzled: and, in this, we cannot even make our difficulty quite clear to ourselves;—it would be such a long confused question, if we could ask you all we should like to know.

L. Nor is it any wonder, Mary; for this is indeed the longest, and the most wildly confused question that reason can deal with; but I will try to give you, quickly, a few clear ideas about the heathen gods, which you may follow out afterwards, as your knowledge increases.

Every heathen conception of deity in which you are likely to be interested, has three distinct characters:—

I. It has a physical character. It represents some of the great powers or objects of nature—sun or moon, or heaven, or the winds, or the sea. And the fables first related about each deity represent, figuratively, the action of the natural power which it represents; such as the rising and setting of the sun, the tides of the sea, and so on.

II. It has an ethical character, and represents, in its history, the moral dealings of God with man. Thus Apollo is first, physically, the sun contending with darkness; but morally, the power of divine life contending

with corruption. Athena is, physically, the air; morally, the breathing of the divine spirit of wisdom. Neptune is, physically, the sea; morally, the supreme power of agitating passion; and so on.

III. It has, at last, a personal character; and is realised in the minds of its worshippers as a living spirit, with whom men may speak face to face, as a man speaks to his friend.

Now it is impossible to define exactly how far, at any period of a national religion, these three ideas are mingled; or how far one prevails over the other. Each enquirer usually takes up one of these ideas, and pursues it, to the exclusion of the others: no impartial effort seems to have been made to discern the real state of the heathen imagination in its successive phases. For the question is not at all what a mythological figure meant in its origin; but what it became in each subsequent mental development of the nation inheriting the thought. Exactly in proportion to the mental and moral insight of any race, its mythological figures mean more to it, and become more real. An early and savage race means nothing more, (because it has nothing more to mean,) by its Apollo, than the sun; while a cultivated Greek means every operation of divine intellect and justice. The Neith, of Egypt, meant, physically, little more than the blue of the air; but the Greek, in a climate of alternate storm and calm, represented the wild fringes of the storm-cloud by the serpents of her ægis; and the lightning and cold of the highest thunder-clouds, by the Gorgon on her shield: while morally, the same types represented to him the mystery and changeful terror of knowledge, as her spear and helm its ruling and defensive power. And no study can be more interesting, or more useful to you, than that of the different meanings which have been created by great nations, and great poets, out of mythological figures given them, at first, in utter simplicity. But when we approach them in their third, or personal, character, (and, for its power over the whole national mind, this is far the leading one), we are met at once by questions which may well put all of you at pause.

Were they idly imagined to be real beings? and did they so usurp the place of the true God? Or were they actually real beings,—evil spirits,—leading men away from the true God? Or is it conceivable that they might have been real beings,—good spirits,—entrusted with some message from the true God? These were the questions you wanted to ask; were they not, Lucilla?

LUCILLA. Yes, indeed.

L. Well, Lucilla, the answer will much depend upon the clearness of your faith in the personality of the spirits which are described in the book of your own religion;—their personality, observe, as distinguished from merely symbolical visions. For instance, when Jeremiah has the vision of the seething pot with its mouth to the north, you know that this which he sees is not a real thing; but merely a significant dream. Also, when Zechariah sees the speckled horses among the myrtle trees in the bottom, you still may suppose the vision symbolical;—you do not think of them as real spirits, like Pegasus, seen in the form of horses. But when you are told of the four riders in the Apocalypse, a distinct sense of personality begins to force itself upon you. And though you might, in a dull temper think that (for one instance of all) the fourth rider on the pale horse was merely a symbol of the power of death,—in your stronger and more earnest moods you will rather conceive of him as a real and living angel. And when you look back from the vision of the Apocalypse to the account of the destruction of the Egyptian first-born, and of the army of Sennacherib, and again to David's vision at the threshing floor of Araunah, the idea of personality in this death-angel becomes entirely defined, just as in the appearance of the angels to Abraham, Manoah, or Mary.

Now, when you have once consented to this idea of a personal spirit, must not the question instantly follow: "Does this spirit exercise its functions towards one race of men only, or towards all men? Was it an angel of death to the Jew only, or to the Gentile also?" You find a certain Divine agency made visible to a King of

Israel, as an armed angel, executing vengeance, of which one special purpose was to lower his kingly pride. You find another (or perhaps the same) agency, made visible to a Christian prophet as an angel standing in the sun, calling to the birds that fly under heaven to come, that they may eat the flesh of kings. Is there anything impious in the thought that the same agency might have been expressed to a Greek king, or Greek seer, by similar visions?—that this figure, standing in the sun, and armed with the sword, or the bow (whose arrows were drunk with blood), and exercising especially its power in the humiliation of the proud, might, at first, have been called only "Destroyer," and afterwards, as the light, or sun, of justice, was recognised in the chastisement, called also "Physician" or "Healer?" If you feel hesitation in admitting the possibility of such a manifestation, I believe you will find it is caused, partly indeed by such trivial things as the difference to your ear between Greek and English terms; but, far more, by uncertainty in your own mind respecting the nature and truth of the visions spoken of in the Bible. Have any of you intently examined the nature of your belief in them? You, for instance, Lucilla, who think often, and seriously, of such things?

LUCILLA. No; I never could tell what to believe about them. I know they must be true in some way or other; and I like reading about them.

L. Yes; and I like reading about them too, Lucilla; as I like reading other grand poetry. But, surely, we ought both to do more than like it? Will God be satisfied with us, think you, if we read His words, merely for the sake of an entirely meaningless poetical sensation?

LUCILLA. But do not the people who give themselves to seek out the meaning of these things, often get very strange, and extravagant?

L. More than that, Lucilla. They often go mad. That abandonment of the mind to religious theory, or contemplation, is the very thing I have been pleading with you against. I never said you should set yourself to discover the meanings: but you should take careful

pains to understand them, so far as they *are* clear; and you should always accurately ascertain the state of your mind about them. I want you never to read merely for the pleasure of fancy;—still less as a formal religious duty; (else you might as well take to repeating Paters at once; for it is surely wiser to repeat one thing we understand, than read a thousand which we cannot). Either, therefore, acknowledge the passages to be, for the present, unintelligible to you; or else determine the sense in which you at present receive them; or, at all events, the different senses between which you clearly see that you must choose. Make either your belief, or your difficulty, definite; but do not go on, all through your life, believing nothing intelligently, and yet supposing that your having read the words of a divine book must give you the right to despise every religion but your own. I assure you, strange as it may seem, our scorn of Greek tradition depends, not on our belief, but our disbelief, of our own traditions. We have, as yet, no sufficient clue to the meaning of either; but you will always find that, in proportion to the earnestness of our own faith, its tendency to accept a spiritual personality increases: and that the most vital and beautiful Christian temper rests joyfully in its conviction of the multitudinous ministry of living angels, infinitely varied in rank and power. You all know one expression of the purest and happiest form of such faith, as it exists in modern times, in Richter's lovely illustrations of the Lord's Prayer. The real and living death-angel, girt as a pilgrim for journey, and softly crowned with flowers, beckons at the dying mother's door; child-angels sit talking face to face with mortal children, among the flowers;—hold them by their little coats, lest they fall on the stairs;—whisper dreams of heaven to them, leaning over their pillows; carry the sound of the church bells for them far through the air; and even descending lower in service, fill little cups with honey, to hold out to the weary bee. By the way, Lily, did you tell the other children that story about your little sister, and Alice, and the sea?

LILY. I told it to Alice, and to Miss Dora. I don't think I did to anybody else. I thought it wasn't worth.

L. We shall think it worth a great deal now, Lily, if you will tell it us. How old is Dotty, again? I forget.

LILY. She is not quite three; but she has such odd little old ways, sometimes.

L. And she was very fond of Alice?

LILY. Yes; Alice was so good to her always!

L. And so when Alice went away?

LILY. Oh, it was nothing, you know, to tell about; only it was strange at the time.

L. Well; but I want you to tell it.

LILY. The morning after Alice had gone, Dotty was very sad and restless when she got up; and went about, looking into all the corners, as if she could find Alice in them, and at last she came to me, and said, "Is Alie gone over the great sea?" And I said, "Yes, she is gone over the great, deep sea, but she will come back again some day." Then Dotty looked round the room; and I had just poured some water out into the basin; and Dotty ran to it, and got up on a chair, and dashed her hands through the water, again and again; and cried, "Oh, deep, deep sea! send little Alie back to me."

L. Isn't that pretty, children? There's a dear little heathen for you! The whole heart of Greek mythology is in that; the idea of a personal being in the elemental power;—of its being moved by prayer;—and of its presence everywhere, making the broken diffusion of the element sacred.

Now, remember, the measure in which we may permit ourselves to think of this trusted and adored personality, in Greek, or in any other, mythology, as conceivably a shadow of truth, will depend on the degree in which we hold the Greeks, or other great nations, equal, or inferior, in privilege and character, to the Jews, or to ourselves. If we believe that the great Father would use the imagination of the Jew as an instrument by which to exalt and lead him; but the imagination of the Greek only to degrade and mislead him: if we can suppose that real

angels were sent to minister to the Jews and to punish them; but no angels, or only mocking spectra of angels, or even devils in the shapes of angels, to lead Lycurgus and Leonidas from desolate cradle to hopeless grave:—and if we can think that it was only the influence of spectres, or the teaching of demons, which issued in the making of mothers like Cornelia, and of sons like Cleobis and Bito, we may, of course, reject the heathen Mythology in our privileged scorn: but, at least, we are bound to examine strictly by what faults of our own it has come to pass, that the ministry of real angels among ourselves is occasionally so ineffectual, as to end in the production of Cornelias who entrust their child-jewels to Charlotte Winsors for the better keeping of them; and of sons like that one who, the other day, in France, beat his mother to death with a stick; and was brought in by the jury, "guilty, with extenuating circumstances."

MAY. Was that really possible?

L. Yes, my dear. I am not sure that I can lay my hand on the reference to it (and I should not have said "the other day"—it was a year or two ago), but you may depend on the fact; and I could give you many like it, if I chose. There was a murder done in Russia, very lately, on a traveller. The murderess's little daughter was in the way, and found it out, somehow. Her mother killed her, too, and put her into the oven. There is a peculiar horror about the relations between parent and child, which are being now brought about by our variously degraded forms of European white slavery. Here *is* one reference, I see, in my notes on that story of Cleobis and Bito; though I suppose I marked this chiefly for its quaintness, and the beautifully Christian names of the sons; but it is a good instance of the power of the King of the Valley of Diamonds [1] among us.

In "Galignani" of July 21-22, 1862, is reported a trial of a farmer's son in the department of the Yonne. The father, two years ago, at Malay le Grand, gave up his property to his two sons, on condition of being maintained

[1] Note vi.

by them. Simon fulfilled his agreement, but Pierre would not. The tribunal of Sens condemns Pierre to pay eighty-four francs a year to his father. Pierre replies, "he would rather die than pay it." Actually, returning home, he throws himself into the river, and the body is not found till next day.

MARY. But—but—I can't tell what you would have us think. Do you seriously mean that the Greeks were better than we are; and that their gods were real angels?

L. No, my dear. I mean only that we know, in reality, less than nothing of the dealings of our Maker with our fellow-men; and can only reason or conjecture safely about them, when we have sincerely humble thoughts of ourselves and our creeds.

We owe to the Greeks every noble discipline in literature; every radical principle of art; and every form of convenient beauty in our household furniture and daily occupations of life. We are unable, ourselves, to make rational use of half that we have received from them: and, of our own, we have nothing but discoveries in science, and fine mechanical adaptations of the discovered physical powers. On the other hand, the vice existing among certain classes, both of the rich and poor, in London, Paris, and Vienna, could have been conceived by a Spartan or Roman of the heroic ages only as possible in a Tartarus, where fiends were employed to teach, but not to punish, crime. It little becomes us to speak contemptuously of the religion of races to whom we stand in such relations; nor do I think any man of modesty or thoughtfulness will ever speak so of any religion, in which God has allowed one good man to die, trusting.

The more readily we admit the possibility of our own cherished convictions being mixed with error, the more vital and helpful whatever is right in them will become: and no error is so conclusively fatal as the idea that God will not allow *us* to err, though He has allowed all other men to do so. There may be doubt of the meaning of other visions; but there is none respecting that of the dream of St. Peter; and you may trust the Rock of the

Church's Foundation for true interpreting, when he learned from it that, "in every nation, he that feareth God and worketh righteousness, is accepted with Him." See that you understand what that righteousness means; and set hand to it stoutly: you will always measure your neighbours' creed kindly, in proportion to the substantial fruits of your own. Do not think you will ever get harm by striving to enter into the faith of others, and to sympathise, in imagination, with the guiding principles of their lives. So only can you justly love them, or pity them, or praise. By the gracious effort you will double, treble—nay, indefinitely multiply, at once the pleasure, the reverence, and the intelligence with which you read: and, believe me, it is wiser and holier, by the fire of your own faith to kindle the ashes of expired religions, than to let your soul shiver and stumble among their graves, through the gathering darkness, and communicable cold.

MARY (*after some pause*). We shall all like reading Greek history so much better after this! but it has put everything else out of our heads that we wanted to ask.

L. I can tell you one of the things; and I might take credit for generosity in telling you; but I have a personal reason—Lucilla's verse about the creation.

DORA. Oh, yes—yes; and its "pain together, until now."

L. I call you back to that, because I must warn you against an old error of my own. Somewhere in the fourth volume of "Modern Painters," I said that the earth seemed to have passed through its highest state: and that, after ascending by a series of phases, culminating in its habitation by man, it seems to be now gradually becoming less fit for that habitation.

MARY. Yes, I remember.

L. I wrote those passages under a very bitter impression of the gradual perishing of beauty from the loveliest scenes which I knew in the physical world;—not in any doubtful way, such as I might have attributed to loss of sensation in myself—but by violent and definite physical action; such as the filling up of the Lac de Chêde by land-

slips from the Rochers des Fiz;—the narrowing of the Lake Lucerne by the gaining delta of the stream of the Muotta-Thal, which, in the course of years, will cut the lake into two, as that of Brientz has been divided from that of Thun;—the steady diminishing of the glaciers north of the Alps, and still more of the sheets of snow on their southern slopes, which supply the refreshing streams of Lombardy;—the equally steady increase of deadly maremma round Pisa and Venice; and other such phenomena, quite measurably traceable within the limits even of short life, and unaccompanied, as it seemed, by redeeming or compensatory agencies. I am still under the same impression respecting the existing phenomena; but I feel more strongly, every day, that no evidence to be collected within historical periods can be accepted as any clue to the great tendencies of geological change; but that the great laws which never fail, and to which all change is subordinate, appear such as to accomplish a gradual advance to lovelier order, and more calmly, yet more deeply, animated Rest. Nor has this conviction ever fastened itself upon me more distinctly, than during my endeavour to trace the laws which govern the lowly framework of the dust. For, through all the phases of its transition and dissolution, there seems to be a continual effort to raise itself into a higher state; and a measured gain, through the fierce revulsion and slow renewal of the earth's frame, in beauty, and order, and permanence. The soft white sediments of the sea draw themselves, in process of time, into smooth knots of sphered symmetry; burdened and strained under increase of pressure, they pass into a nascent marble; scorched by fervent heat, they brighten and blanch into the snowy rock of Paros and Carrara. The dark drift of the inland river, or stagnant slime of inland pool and lake, divides, or resolves itself as it dries, into layers of its several elements; slowly purifying each by the patient withdrawal of it from the anarchy of the mass in which it was mingled. Contracted by increasing drought, till it must shatter into fragments, it infuses continually a finer ichor into the opening veins,

and finds in its weakness the first rudiments of a perfect strength. Rent at last, rock from rock, nay, atom from atom, and tormented in lambent fire, it knits, through the fusion, the fibres of a perennial endurance; and, during countless subsequent centuries, declining, or, rather let me say, rising, to repose, finishes the infallible lustre of its crystalline beauty, under harmonies of law which are wholly beneficent, because wholly inexorable.

(*The children seem pleased, but more inclined to think over these matters than to talk.*)

L. (*after giving them a little time*). Mary, I seldom ask you to read anything out of books of mine; but there is a passage about the Law of Help, which I want you to read to the children now, because it is of no use merely to put it in other words for them. You know the place I mean, do you not?

MARY. Yes (*presently finding it*); where shall I begin?

L. Here; but the elder ones had better look afterwards at the piece which comes just before this.

MARY (*reads*):

"A pure or holy state of anything is that in which all its parts are helpful or consistent. The highest and first law of the universe, and the other name of life, is, therefore, 'help.' The other name of death is 'separation.' Government and co-operation are in all things, and eternally, the laws of life. Anarchy and competition, eternally, and in all things, the laws of death.

"Perhaps the best, though the most familiar, example we could take of the nature and power of consistence, will be that of the possible changes in the dust we tread on.

"Exclusive of animal decay, we can hardly arrive at a more absolute type of impurity, than the mud or slime of a damp, over-trodden path, in the outskirts of a manufacturing town. I do not say mud of the road, because that is mixed with animal refuse; but take merely an ounce or two of the blackest slime of a beaten footpath, on a rainy day, near a manufacturing town. That slime we shall find in most cases composed of clay, (or brickdust, which is burnt clay), mixed with soot, a little sand, and water. All these elements are at helpless war with each other, and destroy reciprocally each other's nature and power: competing and fighting for place at every tread of your foot; sand squeezing out clay, and

clay squeezing out water, and soot meddling everywhere, and defiling the whole. Let us suppose that this ounce of mud is left in perfect rest, and that its elements gather together, like to like, so that their atoms may get into the closest relations possible.

"Let the clay begin. Ridding itself of all foreign substance, it gradually becomes a white earth, already very beautiful, and fit, with help of congealing fire, to be made into finest porcelain, and painted on, and be kept in kings' palaces. But such artificial consistence is not its best. Leave it still quiet, to follow its own instinct of unity, and it becomes, not only white, but clear; not only clear, but hard; nor only clear and hard, but so set that it can deal with light in a wonderful way, and gather out of it the loveliest blue rays only, refusing the rest. We call it then a sapphire.

"Such being the consummation of the clay, we give similar permission of quiet to the sand. It also becomes, first, a white earth; then proceeds to grow clear and hard, and at last arranges itself in mysterious, infinitely fine parallel lines, which have the power of reflecting, not merely the blue rays, but the blue, green, purple, and red rays, in the greatest beauty in which they can be seen through any hard material whatsoever. We call it then an opal.

"In next order the soot sets to work. It cannot make itself white at first; but, instead of being discouraged, tries harder and harder; and comes out clear at last; and the hardest thing in the world: and for the blackness that it had, obtains in exchange the power of reflecting all the rays of the sun at once, in the vividest blaze that any solid thing can shoot. We call it then a diamond.

"Last of all, the water purifies, or unites itself; contented enough if it only reach the form of a dewdrop: but, if we insist on its proceeding to a more perfect consistence, it crystallises into the shape of a star. And, for the ounce of slime which we had by political economy of competition, we have, by political economy of co-operation, a sapphire, an opal, and a diamond, set in the midst of a star of snow."

L. I have asked you to hear that, children, because, from all that we have seen in the work and play of these past days, I would have you gain at least one grave and enduring thought. The seeming trouble,—the unquestionable degradation,—of the elements of the physical earth, must passively wait the appointed time of their repose, or their restoration. It can only be brought about for them by the agency of external law. But if,

indeed, there be a nobler life in us than in these strangely moving atoms;—if, indeed, there is an eternal difference between the fire which inhabits them, and that which animates us,—it must be shown, by each of us in his appointed place, not merely in the patience, but in the activity of our hope; not merely by our desire, but our labour, for the time when the Dust of the generations of men shall be confirmed for foundations of the gates of the city of God. The human clay, now trampled and despised, will not be,—cannot be,—knit into strength and light by accidents or ordinances of unassisted fate. By human cruelty and iniquity it has been afflicted;—by human mercy and justice it must be raised: and, in all fear or questioning of what is or is not, the real message of creation, or of revelation, you may assuredly find perfect peace, if you are resolved to do that which your Lord has plainly required,—and content that He should indeed require no more of you,—than to do Justice, to love Mercy, and to walk humbly with Him.

NOTES

NOTES

NOTE I

Page 28

" That third pyramid of hers "

THROUGHOUT the dialogues, it must be observed that " Sibyl " is addressed (when in play) as having once been the Cumæan Sibyl; and " Egypt " as having been queen Nitocris,—the Cinderella, and " the greatest heroine and beauty " of Egyptian story. The Egyptians called her " Neith the Victorious " (Nitocris), and the Greeks " Face of the Rose " (Rhodope). Chaucer's beautiful conception of Cleopatra in the " Legend of Good Women," is much more founded on the traditions of her than on those of Cleopatra; and, especially in its close, modified by Herodotus's terrible story of the death of Nitocris, which, however, is mythologically nothing more than a part of the deep monotonous ancient dirge for the fulfilment of the earthly destiny of Beauty; " She cast herself into a chamber full of ashes."

I believe this Queen is now sufficiently ascertained to have either built, or increased to double its former size, the third pyramid of Gizeh: and the passage following in the text refers to an imaginary endeavour, by the Old Lecturer and the children together, to make out the description of that pyramid in the 167th page of the second volume of Bunsen's " Egypt's Place in Universal History "—ideal endeavour,—which ideally terminates as the Old Lecturer's real endeavours to the same end always have terminated. There are, however, valuable

notes respecting Nitocris at page 210 of the same volume: but the "Early Egyptian History for the Young," by the author of Sidney Gray, contains, in a pleasant form, as much information as young readers will usually need.

NOTE II

Page 29

"*Pyramid of Asychis*"

THIS pyramid, in mythology, divides with the Tower of Babel the shame, or vain glory, of being presumptuously, and first among great edifices, built with "brick for stone." This was the inscription on it, according to Herodotus:—

> "Despise me not, in comparing me with the pyramids of stone; for I have the pre-eminence over them, as far as Jupiter has pre-eminence over the gods. For, striking with staves into the pool, men gathered the clay which fastened itself to the staff, and kneaded bricks out of it, and so made me."

The word I have translated "kneaded" is literally "drew;" in the sense of drawing, for which the Latins used "duco;" and thus gave us our "ductile" in speaking of dead clay, and Duke, Doge, or leader, in speaking of living clay. As the asserted pre-eminence of the edifice is made, in this inscription, to rest merely on the quantity of labour consumed in it, this pyramid is considered, in the text, as the type, at once, of the base building, and of the lost labour, of future ages; so far at least as the spirits of measured and mechanical effort deal with it: but Neith, exercising her power upon it, makes it a type of the work of wise and inspired builders.

NOTE III

Page 28

"The Greater Pthah"

It is impossible, as yet, to define with distinctness the personal agencies of the Egyptian deities. They are continually associated in function, or hold derivative powers, or are related to each other in mysterious triads; uniting always symbolism of physical phenomena with real spiritual power. I have endeavoured partly to explain this in the text of the tenth Lecture: here, it is only necessary for the reader to know that the Greater Pthah more or less represents the formative power of order and measurement: he always stands on a four-square pedestal, "the Egyptian cubit, metaphorically used as the hieroglyphic for truth;" his limbs are bound together, to signify fixed stability, as of a pillar; he has a measuring-rod in his hand; and at Philæ, is represented as holding an egg on a potter's wheel; but I do not know if this symbol occurs in older sculptures. His usual title is the "Lord of Truth." Others, very beautiful: "King of the Two Worlds, of Gracious Countenance," "Superintendent of the Great Abode," etc., are given by Mr. Birch in Arundale's "Gallery of Antiquities," which I suppose is the book of best authority easily accessible. For the full titles and utterances of the gods, Rosellini is as yet the only—and I believe, still a very questionable—authority; and Arundale's little book, excellent in the text, has this great defect, that its drawings give the statues invariably a ludicrous or ignoble character. Readers who have not access to the originals must be warned against this frequent fault in modern illustration, (especially existing also in some of the painted casts of Gothic and Norman work at the Crystal Palace). It is not owing to any wilful want of

veracity: the plates in Arundale's book are laboriously faithful: but the expressions of both face and body in a figure depend merely on emphasis of touch; and, in barbaric art, most draughtsmen emphasise what they plainly see — the barbarism; and miss conditions of nobleness, which they must approach the monument in a different temper before they will discover, and draw with great subtlety before they can express.

The character of the Lower Pthah, or perhaps I ought rather to say, of Pthah in his lower office, is sufficiently explained in the text of the third Lecture: only the reader must be warned that the Egyptian symbolism of him by the beetle was not a scornful one; it expressed only the idea of his presence in the first elements of life. But it may not unjustly be used, in another sense, by us, who have seen his power in new development; and, even as it was, I cannot conceive that the Egyptians should have regarded their beetle-headed image of him, (Champollion, "Pantheon," pl. 12) without some occult scorn. It is the most painful of all their types of any beneficent power; and even among those of evil influences, none can be compared with it, except its opposite, the tortoise-headed demon of indolence.

Pasht (p. 28, line 38) is connected with the Greek Artemis, especially in her offices of judgment and vengeance. She is usually lioness-headed; sometimes cat-headed; her attributes seeming often trivial or ludicrous unless their full meaning is known; but the enquiry is much too wide to be followed here. The cat was sacred to her; or rather to the sun, and secondarily to her. She is alluded to in the text because she is always the companion of Pthah (called "the beloved of Pthah," it may be as Judgment, demanded and longed for by Truth); and it may be well for young readers to have this fixed in their minds, even by chance association. There are more statues of Pasht in the British Museum than of any other Egyptian deity; several of them fine in workmanship; nearly all in dark stone, which may be, presumably, to connect her, as

the moon, with the night; and in her office of avenger, with grief.

Thoth, (p. 31, line 24) is the Recording Angel of Judgment; and the Greek Hermes. Phre, (line 27) is the Sun.

Neith is the Egyptian spirit of divine wisdom; and the Athena of the Greeks. No sufficient statement of her many attributes, still less of their meanings, can be shortly given; but this should be noted respecting the veiling of the Egyptian image of her by vulture wings—that as she is, physically, the goddess of the air, this bird, the most powerful creature of the air known to the Egyptians, naturally became her symbol. It had other significations; but certainly this, when in connection with Neith. As representing her, it was the most important sign, next to the winged sphere, in Egyptian sculpture; and, just as in Homer, Athena herself guides her heroes into battle, this symbol of wisdom, giving victory, floats over the heads of the Egyptian kings. The Greeks, representing the goddess herself in human form, yet would not lose the power of the Egyptian symbol, and changed it into an angel of victory. First seen in loveliness on the early coins of Syracuse and Leontium, it gradually became the received sign of all conquest, and the so-called "Victory" of later times; which, little by little, loses its truth, and is accepted by the moderns only as a personification of victory itself,—not as an actual picture of the living Angel who led to victory. There is a wide difference between these two conceptions,—all the difference between insincere poetry, and sincere religion. This I have also endeavoured farther to illustrate in the tenth Lecture; there is however one part of Athena's character which it would have been irrelevant to dwell upon there; yet which I must not wholly leave unnoticed.

As the goddess of the air, she physically represents both its beneficent calm, and necessary tempest: other storm-deities (as Chrysaor and Æolus), being invested with a subordinate and more or less malignant function,

which is exclusively their own, and is related to that of Athena as the power of Mars is related to hers in war. So also Virgil makes her able to wield the lightning herself, while Juno cannot, but must pray for the intervention of Æolus. She has precisely the correspondent moral authority over calmness of mind, and just anger. She soothes Achilles, as she incites Tydides; her physical power over the air being always hinted correlatively. She grasps Achilles by his hair—as the wind would lift it—softly,

> " It fanned his cheek, it raised his hair,
> Like a meadow gale in spring."

She does not merely turn the lance of Mars from Diomed; but seizes it in both her hands, and casts it aside, with a sense of making it vain, like chaff in the wind;—to the shout of Achilles, she adds her own voice of storm in heaven—but in all cases the moral power is still the principal one—most beautifully in that seizing of Achilles by the hair, which was the talisman of his life (because he had vowed it to the Sperchius if he returned in safety,) and which, in giving at Patroclus' tomb, he, knowingly, yields up the hope of return to his country, and signifies that he will die with his friend. Achilles and Tydides are, above all other heroes, aided by her in war, because their prevailing characters are the desire of justice, united in both, with deep affections; and, in Achilles, with a passionate tenderness, which is the real root of his passionate anger. Ulysses is her favourite chiefly in her office as the goddess of conduct and design.

NOTE IV

Page 64

" Geometrical limitations "

It is difficult, without a tedious accuracy, or without full illustration, to express the complete relations of

crystalline structure, which dispose minerals to take, at different times, fibrous, massive, or foliated forms; and I am afraid this chapter will be generally skipped by the reader; yet the arrangement itself will be found useful, if kept broadly in mind; and the transitions of state are of the highest interest, if the subject is entered upon with any earnestness. It would have been vain to add to the scheme of this little volume any account of the geometrical forms of crystals: an available one, though still far too difficult and too copious, has been arranged by the Rev. Mr. Mitchell, for Orr's "Circle of the Sciences"; and, I believe, the "nets" of crystals, which are therein given to be cut out with scissors, and put prettily together, will be found more conquerable by young ladies than by other students. They should also, when an opportunity occurs, be shown, at any public library, the diagram of the crystallisation of quartz referred to poles, at p. 8 of Cloizaux's "Manuel de Minéralogie": that they may know what work is; and what the subject is.

With a view to more careful examination of the nascent states of silica, I have made no allusion in this volume to the influence of mere segregation, as connected with the crystalline power. It has only been recently, during the study of the breccias alluded to in page 141, that I have fully seen the extent to which this singular force often modifies rocks in which at first its influence might hardly have been suspected; many apparent conglomerates being in reality formed chiefly by segregation, combined with mysterious brokenly-zoned structures, like those of some malachites. I hope some day to know more of these and several other mineral phenomena, (especially of those connected with the relative sizes of crystals) which otherwise I should have endeavoured to describe in this volume.

NOTE V

Page 127

"St. Barbara"

I WOULD have given the legends of St. Barbara, and St. Thomas, if I had thought it always well for young readers to have everything at once told them which they may wish to know. They will remember the stories better after taking some trouble to find them; and the text is intelligible enough as it stands. The idea of St. Barbara, as there given, is founded partly on her legend in Peter de Natalibus, partly on the beautiful photograph of Van Eyck's picture of her at Antwerp: which was some time since published at Lille.

NOTE VI

Page 167

"King of the Valley of Diamonds"

ISABEL interrupted the Lecturer here, and was briefly bid to hold her tongue; which gave rise to some talk, apart, afterwards, between L. and Sibyl, of which a word or two may be perhaps advisably set down.

SIBYL. We shall spoil Isabel, certainly, if we don't mind: I was glad you stopped her, and yet sorry; for she wanted so much to ask about the Valley of Diamonds again, and she has worked so hard at it, and made it nearly all out by herself. She recollected Elisha's throwing in the meal, which nobody else did.

L. But what did she want to ask?

SIBYL. About the mulberry trees and the serpents·

we are all stopped by that. Won't you tell us what it means?

L. Now, Sibyl, I am sure you, who never explained yourself, should be the last to expect others to do so. I hate explaining myself.

SIBYL. And yet how often you complain of other people for not saying what they meant. How I have heard you growl over the three stone steps to purgatory; for instance!

L. Yes; because Dante's meaning is worth getting at; but mine matters nothing: at least, if ever I think it is of any consequence, I speak it as clearly as may be. But you may make anything you like of the serpent forests. I could have helped you to find out what they were, by giving a little more detail, but it would have been tiresome.

SIBYL. It is much more tiresome not to find out. Tell us, please, as Isabel says, because we feel so stupid.

L. There is no stupidity; you could not possibly do more than guess at anything so vague. But I think, you, Sibyl, at least,. might have recollected what first dyed the mulberry?

SIBYL. So I did; but that helped little; I thought of Dante's forest of suicides, too, but you would not simply have borrowed that?

L. No. If I had had strength to use it, I should have stolen it, to beat into another shape; not borrowed it. But that idea of souls in trees is as old as the world; or at least, as the world of man. And I *did* mean that there were souls in those dark branches;—the souls of all who had perished in misery through the pursuit of riches; and that the river was of their blood, gathering gradually, and flowing out of the valley. Then I meant the serpents for the souls of those who had lived carelessly and wantonly in their riches; and who have all their sins forgiven by the world, because they are rich: and therefore they have seven crimson-crested heads, for the seven mortal sins; of which they are proud: and these, and the memory and report of

them, are the chief causes of temptation to others, as showing the pleasantness and absolving power of riches; so that thus they are singing serpents. And the worms are the souls of the common money-getters and traffickers, who do nothing but eat and spin: and who gain habitually by the distress or foolishness of others (as you see the butchers have been gaining out of the panic at the cattle plague, among the poor),—so they are made to eat the dark leaves, and spin, and perish.

SIBYL. And the souls of the great, cruel, rich people who oppress the poor, and lend money to governments to make unjust war, where are they?

L. They change into the ice, I believe, and are knit with the gold; and make the grave-dust of the valley. I believe so, at least, for no one ever sees those souls anywhere.

(SIBYL *ceases questioning.*)

ISABEL (*who has crept up to her side without any one's seeing*). Oh, Sibyl, please ask him about the fireflies!

L. What, you there, mousie! No; I won't tell either Sibyl or you about the fireflies; nor a word more about anything else. You ought to be little fireflies yourselves, and find your way in twilight by your own wits.

ISABEL. But you said they burned, you know?

L. Yes; and you may be fireflies that way too, some of you, before long, though I did not mean that. Away with you, children. You have thought enough for to-day.

APPENDICES

APPENDIX I

THIRD PYRAMID

(Bunsen: "Egypt's Place in Universal History," vol. ii. 166 *seq.*)

A PASSAGE inclined at an angle of 26° 2′, 13 feet above the base, 104 feet long, and unusually wide and high, leads to the inside of the pyramid. After 28 feet 2 inches the granite casing ceases, because the rock supplies its place. From hence a passage slightly inclined towards the end leads to a large apartment. The way to it is through an *ante-room* 12 feet long, 10 feet 5 inches wide, and 7 feet high. Its walls are covered with white stucco, in narrow longitudinal compartments. The middle of the ante-room was blocked up by large square stones laid across it, which completely closed both doorways. When this impediment was removed, three granite portcullises, one close after the other, barred the entrance against an intruder. These additional precautions announced the propinquity of a shrine. The large apartment itself is also in reality a sepulchral chamber 46 feet 3 inches long from east to west, 12 feet 7 inches wide, and the original height 12 feet. The bottom of it was flagged; but the paving has been wrenched off, so that now the uneven surface of the rock is exposed to view. A sarcophagus had been sunk into this mutilated pavement and the rock, the proportions of which correspond with those in the great pyramids. Perring found in the apartment (ii. 18, note) several small pieces of red granite, which he supposed to be portions of this sarcophagus—fragments, no doubt, which have survived

the work of demolition. This destruction we must certainly attribute to the Egyptians themselves, in order to account for the total disappearance of the sarcophagus. The plunderers of the pyramids probably broke the sarcophagi to pieces, but they did not take the trouble of breaking the hard granite into such small fragments that they could be swept away through the passages, which must always have been considerable labour, and to them labour in vain.

This is, however, by no means all the construction. At the distance of 17 feet from the eastern end of this apartment the mouth of an inclined passage was visible through the holes in the pavement. It runs for a distance of above 33 feet, sloping down to an inclined passage which, 10 feet further on, led into the sepulchral chamber of Mykerinus. Here again every precaution was taken to bar the entrance, and render the removal of the sarcophagus impossible. The inclined passage is 4 feet 9 inches high, and the same width above. Half way up it is narrowed to a width of barely 3 feet by ramps, which extend all along both sides, and these again were barricadoed by blocks walled in for a distance of 16 feet 9 inches. Lastly, just at the entrance to the inclined passage, it was blocked up by a granite portcullis. Immediately to the right of it is a room hewn out, and opposite to it, on the left, seven steps lead up to a small unornamented chamber, cut slanting in the rock, with niches the destination of which is uncertain, but evidently a very subordinate one—for the labourers or their tools, perhaps, or to conceal the blocks with which the passage was last of all to be barricadoed. The sepulchral chamber itself is lined with granite slabs 2 feet 6 inches thick, fastened to each other and to the rock by iron cramps of skilful workmanship, two of which were found. This sepulchral chamber is not so spacious as the upper one; it is 21 feet 8 inches from north to south, by 8 feet 7 inches east and west. The roof is formed of blocks 10 feet 6 inches long, meeting in the middle, the lower surface of which is hewn out and

coved. The central height is 11 feet 3 inches. In this sepulchral chamber General Vyse found the sarcophagus of Mykerinus the Holy. The vessel containing the venerable relic itself, unfortunately, went down on the coast of Spain on its way to England. It was composed of basalt, which bore a fine polish of a shaded brown colour, but was blue where it had been chipped off or broken, and appeared to have been sawn. The outside was very beautifully carved in compartments in the Doric style. The lid was found with the above-mentioned mummy case under the rubbish in the large entrance room. Edrisi (Vyse, ii. 71, note) states, that shortly before he wrote, that is about A.D. 1240, a company undertook to open the pyramid. The information furnished him by a very respectable man, who was present on the occasion, gives a very good idea of the state of the interior. "After they had worked at it for six months with axes, in great numbers, hoping to find treasure, they came at last to a long blue basin. When they had broken the covering of it, they found nothing but the decayed, rotten remains of a man, but no treasures on his side, excepting some golden tablets inscribed with characters of a language nobody could understand. Each man's share of the profits of these amounted to one hundred dinars."

From this account, and the results of our previous inquiry, it seems perfectly absurd to doubt the genuineness of the sarcophagus, because the mummy was not wrapped in byssus, as in later times, but in coarse woollen cloths. Independent of its being in the highest degree uncritical to draw a conclusion from the monuments of the New Empire, as to those of the days of the pyramids, which are more than a thousand years older, fragments of similar wrappings have been found by Perring in ancient tombs at the quarries of Turah. The lid, which is in existence, contains the following prayer, in two perpendicular columns offered for the soul of the King, deified under the character of Osiris:—

Osirian (deceased) King Menkaru-ra, Living for Ever, Engendered of Heaven, Child of Netpe (Rhea) Offspring (Beloved by Seb (Chronos)): Extended is thy mother	Netpe (the Abime of Heaven) over thee in her name of the void of Heaven: she has made thee to be as a god (annihilating) thy slanderers: Oh King Menkaru-ra living for ever!

(Birch's translation.)

We have thus proceeded from the entrance to the apartment which was the sepulchral chamber, and beyond all doubt the resting-place of Mykerinus. *But did we reach it by the same way as Mykerinus?* All the passages we have passed through, as Perring shrewdly observes, are chiselled from the inside outwards. How then did Mykerinus get into the pyramid? In the first instance, he could only have passed through the upper passage. Another passage runs immediately above it into the great apartment or upper sepulchral chamber; and again another into it, inclining upwards at the same angle as the entrance, and ending where the rock commenced. If continued on to the original surface of the pyramid, the floor would run to about 33 feet above the base, or 20 above the lower entrance, which is now the only one. *But this upper passage is chiselled from the outside inwards*, whereas the lower passages were chiselled in the reverse manner, after the workmen were in the pyramid. This may be accounted for in one of two ways. Either Mykerinus built the pyramid as we now find it, or a smaller one, the entrance to which was the present upper one. If so, it terminated as much above the base as the present entrance does above the present pyramid. In the former case, the walling up of the entrance which is made in the rock, can only be explained by supposing the original plan to have been abandoned, in order to make a larger pyramid. This is Perring's explanation of it. A *pentimento* of this kind

is assuredly very improbable in the most ingeniously constructed of all the pyramids. Manetho expressly says, that Nitokris built the third pyramid. Diodorus attributes the building of it to Mykerinus, adding, however, that he did not complete it. Lastly, Herodotus and Strabo, as we shall see hereafter, were informed that it was the work of that celebrated queen.

NITOKRIS

(Page 210)

As respects the Queen Nitokris, we have already explained the statement of Manetho that " Nitokris built the third Pyramid " as signifying that he saw it in its present form, as constructed by this queen, who enlarged the Pyramid of Mencheres, and that he described it as nearly as possible in the state we now find it, although it has since undergone much intentional dilapidation. He could not be mistaken in this—the hieroglyphics on the casing told him that Mencheres was buried there, as did Herodotus also, who states that the name of the King was legible on its northern front.

Nitokris seems to have doubled the base of the pyramid, for its original measurement, as already stated, was about 180 feet, and the present one 354 feet 6 inches. The perpendicular height of the old building was about 148 feet; that of the present one, 218, consequently a third more. Of the internal arrangements, therefore, the lower entrance would seem to have been made by her—the original, upper one, was walled off. In doing this, the old casing was torn off, so that it is not extraordinary—as Perring assured me, on my asking him the question—that not a vestige is to be found of the continuation of the original building, which he, as an architect, instinctively looked for.

We have already intimated that Greek tradition re-

corded the fact, which Manetho related in the guise of a legend, without being aware of it. We shall now explain this a little more fully. Herodotus (ii. 134, 135) informs us, that some persons supposed the third Pyramid was not built by Mykerinus, but by a courtesan, well known to the Greeks from Sappho's attack upon her, and her own votive offerings at the Temple of Delphi, of the name of Rhodopis. She was born in Thrace, and was originally a fellow-slave of Aesop in the house of Iadmon, of Samos. Charaxus, Sappho's brother, charmed with her beauty, purchased her freedom and married her. She was consequently the contemporary of Amosis, and lived at Naukratis, the Alexandria of earlier times, so renowned for beauties of that stamp, and was said to have built this Pyramid. Herodotus has proved the utter absurdity of this notion, by most conclusive arguments. He did not bear in mind, however, that the "Rosy-cheeked," as Rhodopis was called, was the Nitokris of the Egyptians—the ill-fated wife of a king, and a reigning queen even—celebrated in the Egyptian annals as the greatest heroine and beauty, and of whom there can be little doubt that the imaginative Greeks picked up a number of stories, which they were not slow in repeating and embellishing. Strabo's version of this legend bears on the face of it evident marks of historic truth. Rhodopis, the pretended builder of the third Pyramid, he says, lived at Naukratis. One day, as she was bathing, the malicious wind carried away her sandal, and laid it at the foot of the king, who was sitting in the Court of Justice in the open air. His curiosity being excited by the singularity of the event and the elegance of the sandal, he could not rest till he had discovered the fair owner of it, and *made her his queen*. Here we have "Rosy Cheeks" as the Egyptian queen. Was she really a foreigner? Possibly a Babylonian or Median, like the Nitokris of Babylon? The name, "Neith the Victorious," is strictly Egyptian; and Herodotus says expressly that Nitokris was an Egyptian.

Suffice it to say, that here, as elsewhere, Manetho's tradition is confirmed, explained, and amplified by the monuments as well as by the Greeks themselves. According to them all, Nitokris was the builder of our Third Pyramid, inasmuch as she constructed it round that of Mykerinus as a centre. The great skill and magnificence displayed in it—in which respects it far surpassed all the others—are consequently due to her.

APPENDIX II

CRYSTALS

(*See Note IV. p.* 182)

THE following passages from the volume on "Geology, Mineralogy and Crystallography," published in Orr's "Circle of the Sciences" (1855) and referred to by Ruskin in his Note on "Geometrical Limitations," may be quoted by way of illustration here. But readers who wish to follow up the study of Crystallography will do well to remember that Mitchell's account in that work is in some respects out of date, names and terms having been changed, and chemistry having achieved, too, since his day, some of the things that were then deemed impossible. For example, the diamond has been, and is regularly now produced by art; though the artificial diamond does not satisfy us artistically. Among later works that may be consulted to eke out Mitchell's pages may be mentioned the popular book on *Minerals*, by Professor E. S. Dana (London: Chapman and Hall) and the larger work on *Mineralogy*, by Professor H. A. Miers (London: Macmillan and Co.). "Nets" for making pasteboard models of crystals can still, we believe, be supplied by Mr. W. J. Shaw, the mineralogist, of 11, John Street, Theobalds Road, London, W.C. But crystallographers to-day seem to use the term "net" no longer.

Crystals

The Forms of Crystals.—Some crystals are very simple in their forms, and present solids remarkable for their symmetry; while others are exceedingly complex, being bounded by more than a hundred different surfaces.

We are ignorant, as yet, of the manner in which the majority of crystals belonging to the mineral kingdom are formed. Very few can be reproduced by the chemist; and those which can, are generally smaller than the natural ones, and present few of their modifications. Crystals of quartz occur of an immense size in nature, some single crystals weighing many pounds. It is doubtful if any crystals of this substance have been obtained artificially. Crystals of carbonate of lime occur in nature of almost every size, and in almost numberless varieties of form; while the artificial crystals are almost microscopical in character. The diamond, which is carbon in a crystallized state, has never been produced by art; but some very minute crystals of a few of the other gems have been formed by the chemists.

Though we are ignorant of the means by which the great majority of crystals have been formed in the great laboratory of Nature, we can crystallize an immense variety of substances. Nothing can be more interesting, and at the same time more instructive to the student of crystallography, than to watch the process of crystallization for himself, and observe the gradual growth of crystals.

Artificial Crystals.—Crystals may be obtained by various methods. Most of the salts, as well as some other substances which are soluble in water, deposit crystals as their solutions are gradually evaporated. Bismuth, and most other metals, assume the crystalline form as they pass from the fluid to the solid state after being melted. Some bodies become crystallized by the process of sublimation. Crystals are formed by the

electro-galvanic decomposition of some solutions; thus, tin crystallizes by the reduction of a solution of its protochloride by a galvanic current. Crystals of sulphur may be obtained in three ways,—by sublimation, by the evaporation of its solution in bisulphide of carbon, and by cooling from a state of fusion.

Crystals, Crystalline, and Amorphous Substances.—All solid substances which do not owe their structure to the vital forces of the animal or vegetable kingdom are crystals, crystalline, or amorphous. Crystals have been already described. A crystalline body consists of a confused aggregation of minute or imperfect crystals; and an amorphous body is one in which, as its name implies, no form or structure can be observed. Sugar-candy consists of crystals of sugar; loaf sugar is crystalline, and barley-sugar is amorphous. We meet with crystals of carbonate of lime in calcareous spar and arragonite; marble is a crystalline, and chalk an amorphous form of the same substance.

Faces, Edges, Angles, and Axes of Crystals.—The plane surfaces by which a crystal is bounded are called its faces. An edge is the line formed by the union of two faces. The solid angle of a crystal is produced by the union of more than two faces, and may be three-faced, four-faced, six-faced, etc. The plane angles are the angles on a face, bounded by the intersection of its boundary edges. Axes are imaginary lines, drawn through a crystal for the convenience of calculation, or for the purpose of describing its geometrical properties. Crystalline forms are the simplest mathematical solids in which crystals occur, or to which their faces are parallel.

If as much common salt be thrown into boiling water as it will dissolve, beautiful cubes will be seen to form rapidly on its surface as it cools, as well as on the sides of the vessel in which it is contained. The same thing will occur more slowly, if a saturated solution of salt in cold water be allowed to evaporate spontaneously. A warm solution of alum will deposit octahedral crystals on things

suspended in it, as well as on the sides of the vessel containing it as it cools. The surfaces of the cube are all squares, those of the octahedron equilateral triangles; the cube is bounded by six squares, the octahedron by eight triangles. Many far more complicated forms are found in nature.

Systems of Crystal.—Substances, whose crystals occur in the form of the cube or octahedron, or have faces parallel to these forms, present us with crystals either in the form, or with faces parallel to the same mathematical solids. These solids, thus associated by nature, and possessing certain mathematical properties in common, are classed together in one system, called the cubical or octahedral system.

Other substances occur in forms similar to, or with their faces parallel to, other mathematical solids, differing in their mathematical properties from those of the cubical system. These forms are classed together under other systems.

Some one form may be taken as the type or primitive form, from which all others of the same system may be easily derived. This typical or primitive form is quite arbitrary; and it may be either a prism, an octahedron, or some other simple form.

The Six Systems

1st System.—The cubical, or octahedral; according as we consider the regular cube or regular octahedron its typical or primitive form.

2nd System.—Square, prismatic, or pyramidal. Typical form, a prism on a square base, or octahedron on a square base.

3rd System.—Rhombohedral, or hexagonal. Typical form, the rhomboid or the hexagonal prism.

4th System.—Prismatic, or rhombic. Typical form, a right prism on a rhombic base, or octahedron on a rhombic base.

5th System.—Oblique. Typical form, an oblique prism on a rhombic base, or oblique pyramid on a rhombic base.

6th System.—Anorthic, or doubly oblique. Typical form, a doubly oblique prism or octahedron.

Net for the Cube.—One of the simplest, most useful, and at the same time most inexpensive means of modelling the forms of crystals, is to draw their faces on pasteboard, and arrange them in such a manner that some of the edges being cut partially, and others quite through the pasteboard, the whole may readily fold up into the required form. The loose edges being glued together, a firm model will be formed in a few minutes. A drawing of the faces of a solid, arranged so that the model may be folded up from a single piece of pasteboard, is called a *net*. To make a net for the cube, it is very convenient to draw one face on tracing paper. The other faces may then be readily pricked off from this one on the pasteboard, in the required form, with greater ease, and even more accurately than by describing each face geometrically. It will also be found convenient to leave a margin to one edge where two edges are to be glued together. Glue is better than paste, as it dries more quickly, and does not, like paste or gum, warp the surfaces of the model.

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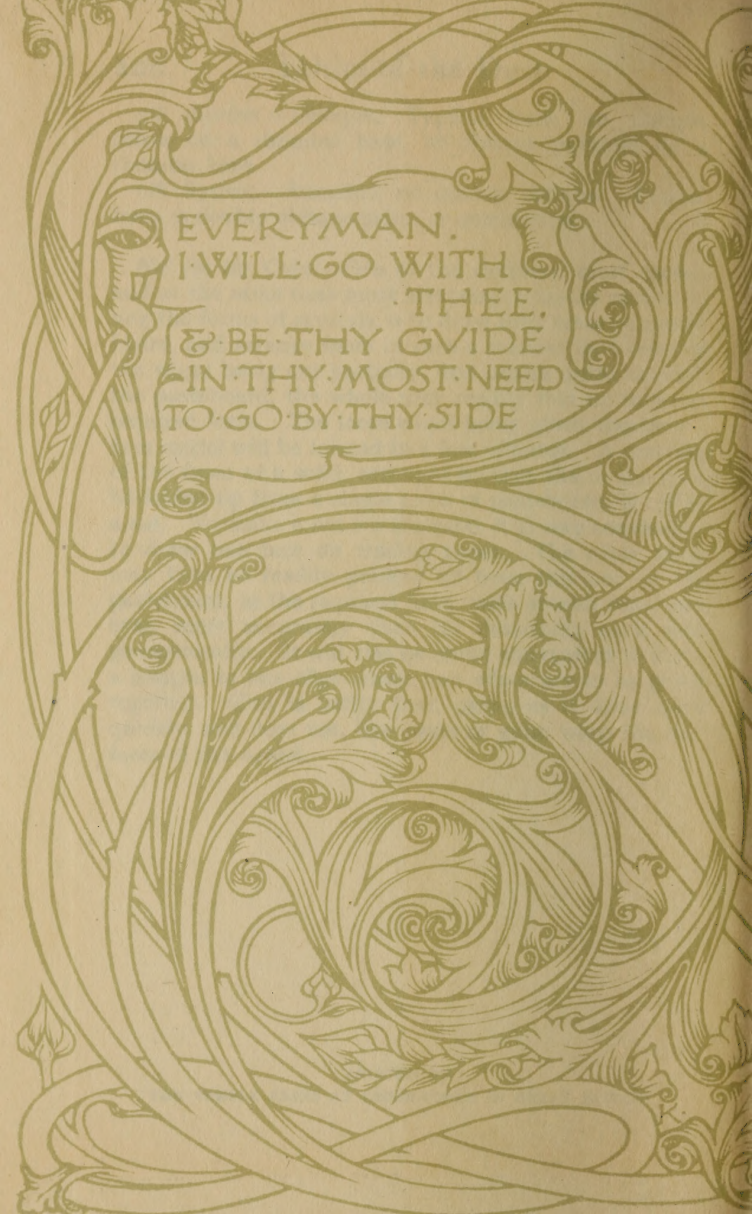
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